

**Dover Municipal Landfill Superfund Site  
Second Consent Decree for RD/RA**

Civil Action No. 1:92-cv-406-M

**APPENDIX A**

**2004 Amended ROD**

(Part 2 of 3)

**Table 1B: Potential Chemical Specific ARARs**

<u>Media</u>	<u>Requirement</u>	<u>Authority</u>	<u>Status</u>	<u>Requirement Synopsis</u>	<u>Action to be Taken to Attain Requirement</u>
Ground Water	STATE – Env-Wm 1400 Ground Water Protection Standards	State Regulatory Requirement	AR	New Hampshire AGQSS are standards that apply to all ground water in the State, consistent with the Legislature's designation of all ground water as a potential water supply.	Groundwater will attain State AGQSSs, MCLs, non-zero MCLGs when there is no MCL or State drinking water standards, whichever is more stringent, at the completion of the remedy.
Ground Water	Safe Drinking Water Act (SDWA) - Maximum Contaminant Levels (MCLs) (40 CFR 141.11-141.14). Revised MCLs (40 CFR 141.61-141.62) and non-zero Maximum Contaminant Level Goals (MCLGs) (40 CFR 141.50-141.51)	Federal Regulatory Requirement	RAR (MCLs and non-zero MCLGs); TBC (MCLGs)	MCLs have been promulgated for a number of common organic and inorganic contaminants to regulate the concentration of contaminants in public drinking water supply systems. MCLs are relevant and appropriate for Site ground water because ground water in the Site vicinity may be used for drinking water. MCLGs are non-enforceable health goals for public water systems.	Ground water will attain State AGQSSs, MCLs, non-zero MCLGs when there is no MCL or State drinking water standards, whichever is more stringent at the completion of the remedy.
Ground Water	New Hampshire Drinking Water Quality Standards (Env-Ws 316, 317, 319)	State Regulatory Requirement	RAR (MCLs and non-zero); TBC (MCLGs)	State MCLs and MCLGs establish maximum contaminant levels permitted in public water supplies and are the basis of State AGQSSs that are applicable to site ground water. Secondary Maximum Contaminant Levels (MCLs) apply to contaminants that primarily affect the aesthetic quality of drinking water. The regulations are generally equivalent to the Federal SDWA. State drinking water quality standards are relevant and appropriate for Site ground water because ground water in the Site vicinity may be used for drinking water.	Ground water will attain State AGQSSs, MCLs, non-zero MCLGs when there is no MCL or State drinking water standards, whichever is more stringent, at completion of the remedy.
Ground Water Surface Water Indoor Air	FEDERAL – USEPA Risk RfDs	Federal Regulatory Requirement	TBC	RfDs are dose levels developed by the USEPA for non-carcinogenic effects.	USEPA RfDs will be used to characterize risks due to exposure to contaminants in ground water and other media.
Ground Water Surface Water Indoor Air	FEDERAL – USEPA Carcinogen Group Potency Factors	Federal Regulatory Requirement	TBC	Potency Factors are developed by the USEPA from Health Assessments or evaluation by the Carcinogen Effects Assessments Group.	USEPA Carcinogenic Potency Factors will be used to compute the individual incremental cancer risk resulting from exposure to site contaminants.
Sediment	Ontario Lowest Effect Levels 1993, 1994	Guidance	TBC	Establishes lowest effect levels for freshwater biota for various contaminants	Used to provide a spectrum of individual incremental cancer risk resulting from exposure to site contaminants for use in ecological risk assessment.

**Table 1B: Potential Chemical Specific ARARs**

<u>Media</u>	<u>Requirement</u>	<u>Authority</u>	<u>Status</u>	<u>Requirement Synopsis</u>	<u>Action to be Taken to Attain Requirement</u>
Sediment	FEDERAL – NOAA Technical Memorandum NOS OMA 52	Federal Guidance	TBC	Ecotoxicity thresholds for various contaminants in sediments and their potential biological effects on biota exposed to the contaminants.	Thresholds for soil and sediments concentrations may be used in an ecological risk assessment.

**Table 1C: Potential Location-Specific ARARs**

<u>Media</u>	<u>Requirement</u>	<u>Authority</u>	<u>Status</u>	<u>Requirement Synopsis</u>	<u>Action to be Taken to Attain Requirement</u>
Wetlands	FEDERAL – CWA Section 404; 40 CFR Part 230;33 CFR Parts 320-330	Federal Regulatory Requirement	AR	These codes establish requirements for the discharge of dredged or fill material into water bodies or wetlands. The regulations prohibit the discharge of dredged or fill material “if there is a practicable alternative...which would issue less impact on the aquatic ecosystem.”	Remedial actions that will result in filling of water bodies or wetlands around the Site must comply with the substantive portions of these requirements. Filling the perimeter ditch is the least environmentally damaging, practicable activity because it will minimize contact with contaminated sediments, prevent sediment re-contamination, and allow ground water to migrate to collection and treatment systems for permanent treatment.
Wetlands	Federal Executive Orders 11990 Protection of Wetlands FEDERAL – 40 CFR Part 6 Appendix A	Federal Regulatory Requirement	AR	Federal agencies are required to avoid the destruction or modification of wetlands, and direct or indirect support of new construction in wetlands wherever there is a practicable alternative. Where avoidance of wetlands cannot be achieved, the proposed action includes all practicable means to limit impact to wetlands that may result from such activity.	Remedial actions will use all practicable means to avoid destruction or modification of wetlands surrounding Site. Remedial alternatives represent the best practicable approach to remediation with the least environmentally damaging impacts.
Land	FEDERAL – RCRA General Facility Standards 40 CFR 264.18(a) Seismic Standards	Federal Regulatory Requirement	AR	Construction of new hazardous waste treatment, storage or disposal facilities is prohibited within 200 feet of a fault that has had a displacement in Holocene time.	Construction of any on-site treatment facility will consider this location standard in design.
Wetlands	FEDERAL – 16 USC 661 et. seq., Fish and Wildlife Coordination Act	Federal Regulatory Requirement	AR	Requires actions to be taken to avoid adverse effects, minimize potential harm to fish or wildlife, and to preserve natural and beneficial uses of the land.	Relevant federal agencies must be contacted to help analyze impacts of remedial action on wildlife in wetlands and river.
Wetlands	STATE – RSA 482-A and Env-Wt 300 New Hampshire Criteria and Conditions for Fill and Dredging in Wetlands	State Regulatory Requirement	AR	Any activity in or adjacent to wetlands, including filling and dredging, must meet these criteria for wetlands protection.	Any remedial activities affecting the wetlands will meet the substantive requirements of this State statute and its regulations. Filling perimeter ditches is the least environmentally damaging activity because it will minimize contact with contaminated sediments, prevent sediment recontamination, and allow groundwater to migrate to collection and treatment systems for permanent treatment.
Ground Water	STATE – Wellhead Protection Program	State Guidance	TBC	Provides criteria for wellhead protection area delineation and identification of contamination sources to be excluded from this area.	These provisions will be considered relative to protection of the Calderwood Well.

## **Attachment 2: ARARs as they apply to Each Alternative**

### **The Attached Tables, in Order:**

Table 2A: Action-Specific ARARs

Table 2B: Chemical-Specific ARARs

Table 2C: Location-Specific ARARs

**Table 2A. Action-Specific ARARs**

<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
FEDERAL - 40 CFR Part 261 RCRA Standards for identification and listing of hazardous waste	Applicable  Used to evaluate site risk	Applicable to excavated material and material generated by treatment processes  Relevant and appropriate to material in landfill  Materials excavated during remedy implementation and materials generated by treatment processes will be analyzed by appropriate test methods and, if applicable, managed in accordance with the substantive requirements of the State hazardous waste regulations.	Applicable to excavated material and material generated by treatment processes  Relevant and appropriate to material in landfill  Materials excavated during remedy implementation, including treatment trench and vertical hydraulic barrier installation and materials generated by treatment processes will be analyzed by appropriate test methods and, if applicable, managed in accordance with the substantive requirements of the State hazardous waste regulations.	Applicable to excavated material and material generated by treatment processes  Relevant and appropriate to material in landfill  Materials excavated during remedy implementation, including treatment trench and vertical hydraulic barrier installation and materials generated by treatment processes will be analyzed by appropriate test methods and, if applicable, managed in accordance with the substantive requirements of the State hazardous waste regulations.
FEDERAL - 40 CFR Part 262 RCRA Standards Applicable to Generators of Hazardous Wastes	Not an ARAR	Applicable  Material generated during well and interceptor trench installation, excavation activities and treatment residuals will be tested and, if hazardous, either consolidated under the RCRA C cap or sent offsite for disposal.	Applicable  Material generated during well, treatment trench and barrier excavation activities and treatment residuals will be tested and, if hazardous, sent offsite for disposal at a licensed facility.	Applicable  Material generated during well, treatment trench, and barrier excavation activities and treatment residuals will be tested and, if hazardous, sent offsite for disposal at a licensed facility.

**Table 2A. Action-Specific ARARs**

<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
FEDERAL - 40 CFR Part 264 RCRA Standards for Owners and Operators of Hazardous Waste TSDF Facilities (See state action specific ARARs for specific sections)	Not an ARAR	Applicable for treatment processes Relevant and appropriate for landfill  The specific portions of the State regulations that are ARARs for this alternative are identified in the state action-specific section.	Applicable for treatment processes Relevant and appropriate for landfill  The specific portions of the state regulations that are ARARs for this alternative are identified in the state action-specific section. .	Applicable for treatment processes Relevant and appropriate for landfill  The specific portions of the state regulations that are ARARs for this alternative are identified in the state action-specific section..
FEDERAL - 40 CFR Part 264 Subpart AA RCRA - Air Emission Standards for Process Vents	Not an ARAR.	Applicable  If process vents are used in connection with groundwater extraction recovery wells or other treatment processes, air emission controls will be implemented if the applicability threshold is met.	Applicable  If process vents are used in connection with the treatment trench, groundwater extraction recovery wells or other treatment processes, air emission controls will be implemented if the applicability threshold is met.	Applicable  If process vents are used in connection with the treatment trench, groundwater extraction recovery wells or other treatment processes, air emission controls will be implemented if the applicability threshold is met.
FEDERAL - 40 CFR Part 264 Subpart BB RCRA - Air Emission Standards for Equipment Leaks	Not an ARAR.	Applicable  If equipment covered by this standard is used in the remedial action, and handles hazardous substances at concentrations that meet this rule's threshold, then air emission controls will be implemented.	Applicable  If equipment covered by this standard is used in the remedial action, and handles hazardous substances at concentrations that meet this rule's threshold, then air emission controls will be implemented.	Applicable  If equipment covered by this standard is used in the remedial action, and handles hazardous substances at concentrations that meet this rule's threshold, then air emission controls will be implemented.

**Table 2A. Action-Specific ARARs**

<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
FEDERAL - 40 CFR Part 265 Subpart CC RCRA - Air Emission Standards for Tanks, Surface Impoundments and Containers	Not an ARAR.	Applicable  If tanks, surface impoundments or containers are used in the remedial action and meet the applicability threshold, then air emission controls will be implemented.	Applicable  If tanks, surface impoundments or containers are used in the remedial action and meet the applicability threshold, then air emission controls will be implemented.	Applicable  If tanks, surface impoundments or containers are used in the remedial action and meet the applicability threshold, then air emission controls will be implemented.
FEDERAL – CWA Section 402, National Pollutant Discharge Elimination System (NPDES)	Not an ARAR	Applicable  On-site discharges shall meet the substantive discharge standards	Applicable  If re-injection of treated ground water to landfill becomes infeasible, any onsite discharges shall meet the substantive requirements of these standards.	Applicable  On-site discharges shall meet the substantive discharge standards



**Table 2A. Action-Specific ARARs**

<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
STATE - Env-Wm 403.6 Identification and Listing of Hazardous Wastes; Toxicity Characteristic	Applicable  Used to evaluate site risk.	Applicable to excavated material and material generated by treatment processes  Relevant and Appropriate to material in landfill  Excavated material and material generated by treatment processes will be analyzed by appropriate test methods. If found to be hazardous wastes, then they will be managed in accordance with substantive requirements of state hazardous waste regulations.	Applicable to excavated material and material generated by treatment processes  Relevant and Appropriate to material in landfill  Material excavated during remedy implementation including treatment trench and vertical hydraulic barrier installation and material generated by treatment processes will be analyzed by appropriate test methods and, if applicable, managed in accordance with the substantive requirements of the state hazardous waste regulations.	Applicable to excavated material and material generated by treatment processes  Relevant and appropriate to material in landfill  Material excavated during remedy implementation including treatment trench and vertical hydraulic barrier installation and material generated by treatment processes will be analyzed by appropriate test methods and, if applicable, managed in accordance with the substantive requirements of the state hazardous waste regulations.

**Table 2A. Action-Specific ARARs**

<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
STATE - Env-Wm 500 Requirements for Hazardous Waste Generators [formerly He-P Ch 1905.06]	Not an ARAR	Applicable  Excavated hazardous material will be consolidated under the RCRA C cap or stockpiled in accordance with these regulations and disposed of offsite at RCRA C facility. Residual hazardous waste from treatment processes, such as spent carbon filters will be disposed of offsite at an appropriate facility.	Applicable  Material generated during well, trench and barrier installation activities and treatment residuals will be tested and if hazardous sent offsite for disposal at a licensed facility. Stockpiled material will comply with the substantive standards of this regulation.	Applicable  Material generated during well, trench and barrier installation activities and treatment residuals will be tested and if hazardous sent offsite for disposal at a licensed facility. Stockpiled material will comply with the substantive standards of the regulation.
STATE – Env-Wm 700 Requirements for Owners and Operators of Hazardous Waste Facilities /Hazardous Waste Transfer Facilities [formerly He-P Ch 1905.08]	Not an ARAR	Applicable for treatment processes  Relevant and Appropriate for landfill  This regulation establishes requirements for owners and operators of hazardous waste sites or treatment facilities. Specific sections are ARARs as described below	Applicable for treatment processes  Relevant and Appropriate for landfill  This regulation establishes requirements for owners and operators of hazardous waste sites or treatment facilities. Specific sections are ARARs as described below.	Applicable for treatment processes  Relevant and Appropriate for landfill  This regulation establishes requirements for owners and operators of hazardous waste sites or treatment facilities. Specific sections are ARARs as described below.

**Table 2A. Action-Specific ARARs**

<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
STATE – Env-Wm 702.10 – 702.13 Groundwater Monitoring [formerly He-P Ch. 1905.08(d)(6) a,b]	Not an ARAR	Relevant and Appropriate  A groundwater monitoring system will be installed and operated that is capable of detecting potential migration of hazardous waste and constituents from the landfill and in offsite plumes and requires corrective action when necessary.	Relevant and Appropriate  A groundwater monitoring system will be installed and operated that is capable of detecting potential migration of hazardous waste and constituents from the landfill and in offsite plumes and requires corrective action when necessary.	Relevant and Appropriate  A groundwater monitoring system will be installed and operated that is capable of detecting potential migration of hazardous waste and constituents from the landfill and in offsite plumes and requires corrective action when necessary.
STATE - Env-Wm 708.02(a)(12) Closure and Post-Closure Disposal Units	Not an ARAR	Relevant and Appropriate  The landfill will be covered with a RCRA C cap that meets the requirements of this regulation for closure with hazardous waste left in place.	Relevant and Appropriate  Landfill must meet clean closure standards at the completion of the remedy.	Relevant and Appropriate  Landfill must meet clean closure standards at the completion of the remedy.
STATE - Env-Wm 708.03 (d)(1) Use and Management of Containers	Not an ARAR	Applicable  If re-grading materials or any other materials generated from implementing the remedy are hazardous waste and are managed in containers, then the containers will be managed to meet the substantive portion of this requirement.	Applicable  If excavated materials or any other materials generated from implementing the remedy are hazardous waste and are managed in containers, then the containers will be managed to meet the substantive portion of this requirement.	Applicable  If excavated materials or any other materials generated from implementing the remedy are hazardous waste and are managed in containers, then the containers will be managed to meet the substantive portion of this requirement.

**Table 2A. Action-Specific ARARs**

<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
STATE - Env-Wm 708.03(d)(2) Tanks	Not an ARAR.	Applicable  If a tank or tank system is used for storing or treating hazardous wastes as part of Site remediation, it will be constructed with secondary containment and a leak detection system and comply with all other substantive requirements including monitoring and inspection requirements.	Applicable  If a tank or tank system is used for storing or treating hazardous wastes as part of Site remediation, it will be constructed with secondary containment and a leak detection system and comply with all other substantive requirements including monitoring and inspection requirements.	Applicable  If a tank or tank system is used for storing or treating hazardous wastes as part of Site remediation, it will be constructed with secondary containment and a leak detection system and comply with all other substantive requirements including monitoring and inspection requirements.
STATE – Env-Wm 708.03(d)(4) Waste Piles [formerly He-P Ch. 1905.08 (f)(1)(d)]	Not an ARAR	Applicable  If during sediment or soil excavation or re-contouring of the Landfill boundaries, COC-impacted soils or debris or dewatered sediment is uncovered and must be temporarily stored on-site as a waste pile, it must be erected, operated, and closed in substantive compliance with the section.	Applicable  If temporary on-site storage of hazardous soils or materials is required, a structure will be designed, built, and operated in accordance with the specific requirements of this section.	Applicable  If temporary on-site storage of hazardous soils or materials is required, a structure will be designed, built, and operated in accordance with the specific requirements of this section.

**Table 2A. Action-Specific ARARs**

<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
STATE – Env-Wm 1403 Ground Water Management and Ground Water Release Detection Permits	Not an ARAR	Applicable  Extracted ground water in and around landfill and from plumes will be treated to meet AGQC before discharge to wetlands or Cocheco River to avoid degrading surface water. A ground water management zone (GMZ) and monitoring program will be established at the site and will remain in place until cleanup goals have been attained throughout the GMZ.	Applicable  Ground water re-injected into landfill and ground water discharged to wetlands or that ultimately discharges to surface water shall be treated to meet AGWC and shall not degrade surface water. A GMZ and a monitoring program will be established at the site and will remain in place until cleanup goals have been attained throughout the GMZ.	Applicable  Ground water re-injected into landfill and ground water discharged to wetlands or that ultimately discharges to surface water shall be treated to meet AGQC and shall not degrade surface water. A GMZ and a monitoring program will be established at the site and will remain in place until cleanup goals have been attained throughout the GMZ.
STATE – RSA 485-A:17 and NH Admin. Code Env-Ws 415 Terrain Alteration	Not an ARAR	Applicable  Erosion and surface water runoff controls will be used during re-contouring and capping of the Landfill and during any on-site construction and/or remediation activities.	Applicable  Erosion and surface water runoff controls will be used during sediment excavation and ditch backfilling and during any other remedial activities	Applicable  Erosion and surface water runoff controls will be used during sediment excavation and ditch backfilling and during any other remedial activities

**Table 2A. Action-Specific ARARs**

<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
STATE – NH Admin. Code Env-A Part 1002 Fugitive Dust Control	Not an ARAR.	Applicable  Measure to prevent, abate and control fugitive dust will be used during periods of re-contouring of the Landfill and cap construction and during any other activities which produce fugitive dust	Applicable  The regulation will be met by maintenance of the soil protective cover and the use of dust suppressants during excavation activities.	Applicable  The regulation will be met by maintenance of the soil protective cover and the use of dust suppressants during excavation activities.
STATE - Env-Ws 1500 New Hampshire Ground Water Discharge Permit and Registration Rules	Not an ARAR.	Applicable  Any ground water re-injected into the landfill or discharged onsite or into surrounding wetlands will receive appropriate treatment to comply with the substantive requirements of this ARAR.	Applicable  Ground water re-injected into the Landfill, or discharged onsite or into surrounding wetlands will receive appropriate treatment to comply with the substantive requirements of this ARAR.	Applicable  Ground water re-injected into the Landfill or discharged onsite or into surrounding wetlands will receive appropriate treatment to comply with the substantive requirements of this ARAR.
STATE – Surface Water Quality Standards, Env-WS 1708	Not an ARAR	Relevant and Appropriate  Standards will be used to measure the performance and effectiveness of the cap, the ground water extraction and treatment processes and discharges, erosion control and surface runoff measures from degrading nearby surface waters.	Relevant and Appropriate  Standards will be used to measure the performance and effectiveness of the treatment trench and source ground water containment systems and discharges, erosion control and surface runoff measures from degrading nearby surface waters.	Relevant and Appropriate  Standards will be used to measure the performance and effectiveness of the treatment trench and source ground water containment systems and discharges, erosion control and surface runoff measures from degrading nearby surface waters

**Table 2A. Action-Specific ARARs**

<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
STATE - Env-A300 Ambient Air Quality Standards	Not an ARAR.	Applicable  Air contaminants, especially particulate matter emissions generated during on-site activities will be controlled, to ensure that the appropriate regulatory standards are met.	Applicable  Air contaminants, especially particulate matter emissions generated during on-site activities will be controlled, to ensure that the appropriate regulatory standards are met.	Applicable  Air contaminants, especially particulate matter emissions generated during on-site activities will be controlled, to ensure that the appropriate regulatory standards are met.
STATE - Env-A 1300 Toxic Air Pollutants	Not an ARAR	Applicable  Releases of contaminants to the air from any source on Site will be monitored to ensure levels do not exceed ambient air levels.	Applicable  Releases of contaminants to the air from any source on Site will be monitored to ensure levels do not exceed the respective AAL.	Applicable  Releases of contaminants to the air from any source on Site will be monitored to ensure levels do not exceed the respective AAL.

**Table 2A. Action-Specific ARARs**

<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
STATE – Env-Ws 904 Pretreatment Standards	Not an ARAR	Applicable  SC-7A will comply with the substantive requirements of this regulation. If levels of contaminant concentrations in groundwater to be discharged to the POTW interfere with the performance of the system, or would cause the POTW to violate water quality standards, or adversely impact the sludge produced, the groundwater shall be pretreated either on site or at the POTW before entering the system.	Not an ARAR	Not an ARAR
STATE – Chapter We 600 Standards for construction, maintenance and abandonment of wells	Not an ARAR	Applicable  All wells will be constructed, maintained, relocated and/or abandoned according to these regulations	Applicable  All wells will be constructed, maintained, relocated and/or abandoned according to these regulations.	Applicable  All wells will be constructed, maintained, relocated and/or abandoned according to these regulations.
FEDERAL - OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils, 67 Federal Register 71169 (Nov. 29, 2002), <a href="http://www.epa.gov/correctiveaction/cis/vapor.htm">http://www.epa.gov/correctiveaction/cis/vapor.htm</a>	TBC  Used to evaluate potential risks associated with indoor air at residences near the	TBC  Potential risks associated with indoor air at residences near the Site will be evaluated, monitored and corrected, consistent with this guidance.	TBC  Potential risks associated with indoor air at residences near the Site will be evaluated, monitored and corrected, consistent with this guidance.	TBC  Potential risks associated with indoor air at residences near the Site will be evaluated, monitored and corrected, consistent with this guidance.



**Table 2A. Action-Specific ARARs**

<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
FEDERAL – Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites. OSWER Directive 9200.4-17P, April 21, 1999.	No an ARAR	TBC  Contaminant levels in Eastern Plume shall be monitored consistent with this guidance.	TBC  MNA evaluations for the Eastern and Southern Plumes shall be performed consistent with this guidance as well as monitoring.	TBC  Contaminant levels in Eastern Plume shall be monitored consistent with this guidance.
FEDERAL – EPA Guidance: Risk-Based Clean Closure, March 16, 1998	Not an ARAR	Not an ARAR	TBC  Landfill will be closed consistent with this guidance at the completion of the remedy.	TBC  Landfill will be closed consistent with this guidance at the completion of the remedy.
FEDERAL – EPA Guidance: Technical Guidance for Final Covers on Haz. Waste Landfills and Surface Impoundments: EPA/530-SW-047; July, 1989.	Not an ARAR	TBC  RCRA C cap shall be constructed consistent with this guidance	TBC  An appropriate cover will be placed on the landfill once clean closure is achieved.	TBC  An appropriate cover will be placed on the landfill once clean closure is achieved.
FEDERAL – Technical Memorandum – EPA Region 1 from Dennis Gagne and Yoon-Jean Choi to Office of Site Remediation and Restoration (February 5, 2001) <a href="http://www.epa.gov/region1/superfund/resource/C524.pdf">http://www.epa.gov/region1/superfund/resource/C524.pdf</a>	Not an ARAR	TBC  This guidance may be considered when constructing the RCRA C cap.	TBC  An appropriate cover will be placed on the landfill once clean closure is achieved.	TBC  An appropriate cover will be placed on the landfill once clean closure is achieved.

**Table 2B. Chemical-Specific ARARs**

<u>Media</u>	<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
Ground Water	STATE – Env–Wm1400 Ground Water Protection Standards	<p>Applicable</p> <p>AGQSS used to calculate site groundwater risk.</p>	<p>Applicable</p> <p>On-and off-site ground water will attain State AGQSSs, MCLs, non-zero MCLGs when there is no MCL or State drinking water standards, whichever is more stringent, at the completion of the remedy. In addition, any treatment system which discharges into surface waters and any activities conducted in the wetlands will be consistent with the maintenance or improvement of ground water quality.</p>	<p>Applicable</p> <p>On- and off-site ground water will attain State AGWSSs, MCLs, non-zero MCLGs when there is no MCL or State drinking water standards whichever is more stringent, at the completion of the remedy. If the remedy is unsuccessful, ground water will meet cleanup levels through contingent actions. In addition, any treatment system which discharges into surface waters and any activities conducted in the wetlands will be consistent with the maintenance or improvement of ground water quality.</p>	<p>Applicable</p> <p>On- and off-site ground water will attain State AGWSSs, MCLs, non-zero MCLGs when there is no MCL or State drinking water standards whichever is more stringent, at the completion of the remedy. If the remedy is unsuccessful, ground water will meet cleanup levels through contingent actions. In addition, any treatment system which discharges into surface waters and any activities conducted in the wetlands will be consistent with the maintenance or improvement of ground water quality.</p>
Ground Water	FEDERAL - Safe Drinking Water Act (SDWA) - Maximum Contaminant Levels (MCLs) (40 CFR 141.11-141.14). Revised MCLs (40 CFR 141.61-141.62) and non-zero Maximum Contaminant Level Goals (MCLGs) (40 CFR 141.50-141.51)	<p>Relevant and Appropriate</p> <p>MCL/MCLGs used to calculate site risk.</p>	<p>Relevant and Appropriate</p> <p>On-and off-site ground water will attain State AGQSSs, MCLs, non-zero MCLGs when there is no MCL or State drinking water standards, whichever is more stringent at the completion of the remedy through capping, lowering of groundwater table under the landfill and through extraction and treatment of groundwater in southern plume. Groundwater in eastern plume expected to meet levels through natural attenuation.</p>	<p>Relevant and Appropriate</p> <p>- On- and off-site ground water will attain State AGQSSs, MCLs, non-zero MCLGs when there is no MCL or State drinking water standards, whichever is more stringent at the completion of the remedy through successful operation of the treatment trench, addressing localized sources in the landfill and potentially through natural attenuation in the plumes. Otherwise, the contingencies of capping the landfill and active treatment of groundwater will meet cleanup levels in groundwater at the completion of the remedy.</p>	<p>Relevant and Appropriate</p> <p>On and off-site ground water will attain State AGQSSs, MCLs, non-zero MCLGs when there is no MCL or State drinking water standards, whichever is more stringent at the completion of the remedy through successful operation of the treatment trench, addressing localized sources in the landfill and potentially through extraction and treatment of groundwater in the southern plume and natural attenuation in the eastern plume. Otherwise, the contingencies of capping the landfill and active treatment of groundwater in the eastern plume will meet cleanup levels in groundwater.</p>

**Table 2B. Chemical-Specific ARARs**

<u>Media</u>	<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
Ground Water	New Hampshire Drinking Water Quality Standards (Env-Ws 316, 317, 319)	<p>Relevant and Appropriate</p> <p>MCLs/MCLGs used to calculate site risk. AGQs are the same as these standards.</p>	<p>Relevant and Appropriate</p> <p>On- and off-site ground water will attain State AGQs, MCLs, non-zero MCLGs when there is no MCL or State drinking water standards, whichever is more stringent at the completion of the remedy through capping, lowering of groundwater table under the landfill and extraction and treatment of groundwater in southern plume. Groundwater in eastern plume expected to meet levels through natural attenuation.</p>	<p>Relevant and Appropriate</p> <p>On- and off-site ground water will attain State AGQs, MCLs, non-zero MCLGs when there is no MCL or State drinking water standards whichever is more stringent at the completion of the remedy. If the remedy is unsuccessful, groundwater will meet cleanup levels through contingent actions.</p>	<p>Relevant and Appropriate</p> <p>On and off-site ground water will attain State AGQs, MCLs, non-zero MCLGs when there is no MCL or State drinking water standards whichever is more stringent at the completion of the remedy. If the remedy is unsuccessful, groundwater will meet cleanup levels through contingent actions.,</p>
Ground Water Surface Water Indoor Air	FEDERAL – USEPA Risk Reference Doses (RfDs)	<p>TBC</p> <p>RfDs will be used to characterize risks associated with residual COC concentrations.</p>	<p>TBC</p> <p>RfDs will be used to characterize risks associated with residual COC concentrations.</p>	<p>TBC</p> <p>RfDs will be used to characterize risks associated with residual COC concentrations.</p>	<p>TBC</p> <p>RfDs will be used to characterize risks associated with residual contaminant concentrations.</p>
Ground Water Surface Water Indoor Air	FEDERAL – USEPA Carcinogen Group Potency Factors	<p>TBC</p> <p>CPFs will be used to characterize risks associated with residual COC concentrations.</p>	<p>TBC</p> <p>CPFs will be used to characterize risks associated with residual COC concentrations.</p>	<p>TBC</p> <p>CPFs will be used to characterize risks associated with residual COC concentrations.</p>	<p>TBC</p> <p>CPFs will be used to characterize risks associated with residual contaminant concentrations.</p>

**Table 2B. Chemical-Specific ARARs**

<u>Media</u>	<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
Sediment Soil	FEDERAL – NOAA Technical Memorandum NOS OMA 52	TBC  Potential ecological risks evaluated using these thresholds.	TBC  Potential ecological risks will be evaluated using these thresholds and sediments in swale and ditch that contain arsenic in excess of 10 ppm will be removed and consolidated under cap or disposed of offsite. Measures will be taken to prevent contaminated sediment from washing into the Cocheco River during excavation.	TBC  Potential ecological risks will be evaluated using these thresholds and sediments in swale and ditch that contain arsenic in excess of 10 ppm will be removed and disposed of offsite. Measures will be taken to prevent contaminated sediment from washing into the Cocheco River during excavation.	TBC  Potential ecological risks will be evaluated using these thresholds and sediments in swale and ditch that contain arsenic in excess of 10 ppm will be removed and disposed of offsite. Measures will be taken to prevent contaminated sediment from washing into the Cocheco River during excavation.
Sediment	Ontario Lowest Effect Levels 1993, 1994	TBC  Used to provide a spectrum of individual incremental cancer risk resulting from exposure to site contaminants for use in ecological risk assessment.	TBC  Used to provide a spectrum of individual incremental cancer risk resulting from exposure to site contaminants for use in ecological risk assessment.	TBC  Used to provide a spectrum of individual incremental cancer risk resulting from exposure to site contaminants for use in ecological risk assessment.	TBC  Used to provide a spectrum of individual incremental cancer risk resulting from exposure to site contaminants for use in ecological risk assessment.

**Table 2C. Location Specific ARARs**

<u>Media</u>	<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
Wetlands	FEDERAL – CWA Section 404; 40 CFR Part 230:33 CFR Parts 320-330	Not an ARAR	<p>Applicable</p> <p>Material excavated from wetlands and water bodies during re-contouring of the Landfill, during construction of the on-site treatment system and interceptor trench from addressing the swale and from the activity of filling the perimeter ditch will be performed using the least environmentally damaging, practicable activities. Measures to mitigate damages will be used at all times during construction and operation of the remedy. Wetlands will be restored to the extent practicable.</p>	<p>Applicable</p> <p>Material excavated from wetlands and water bodies during construction of the aerobic treatment trench , the vertical hydraulic barrier , from addressing the swale and from the activity of filling the perimeter ditch will be performed using the least environmentally damaging practicable activities. Measures to mitigate damages will be used at all times during construction and operation of the remedy. Wetlands will be restored to the extent practicable.</p>	<p>Applicable</p> <p>Material excavated from wetlands and water bodies during construction of the aerobic treatment trench , the vertical hydraulic barrier, the groundwater collection and treatment system, from addressing the swale and from the activity of filling the perimeter ditch will be performed using the least environmentally damaging practicable activities. Measures to mitigate damages will be used at all times during construction and operation of the remedy. Wetlands will be restored to the extent practicable.</p>
Wetlands	Federal Executive Orders 11990 Protection of Wetlands FEDERAL – 40 CFR Part 6 Appendix A	Not an ARAR	<p>Applicable</p> <p>Impacts to wetlands bordering the Site incurred from the installation of the ground water treatment system, interceptor trench, the re-contouring of the landfill and filling of the perimeter ditch will be minimized by including mitigating measures such as silt fences and hay bales during on-site construction activities. Other necessary engineering controls will be used to represent the best practicable approach to remediation with the least environmentally damaging impacts. Impacted wetlands will be restored to the extent practicable.</p>	<p>Applicable</p> <p>Impacts to wetlands bordering the Site from installation of the treatment trench, the vertical hydraulic barrier, the groundwater collection and treatment system, from addressing the swale and from the activity of backfilling the perimeter ditch will be minimized by including mitigating measures such as silt fences and hay bales during on-site construction activities. Other necessary engineering controls will be used to represent the best practicable approach to remediation with the least environmentally damaging impacts. Impacted wetlands will be restored to the extent practicable.</p>	<p>Applicable</p> <p>Impacts to wetlands bordering the Site from installation of the treatment trench, the vertical hydraulic barrier, the groundwater collection and treatment system, from addressing the swale and from the activity of backfilling the perimeter ditch will be minimized by including mitigating measures such as silt fences and hay bales during on-site construction activities. Other necessary engineering controls will be used to represent the best practicable approach to remediation with the least environmentally damaging impacts. Impacted wetlands will be restored to the extent practicable.</p>

**Table 2C. Location Specific ARARs**

<u>Media</u>	<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
Land	FEDERAL – RCRA General Facility Standards 40 CFR 264.18(a) Seismic Standards	Not an ARAR	Applicable  Construction of any on-site treatment facility will not be located within 200 feet of a fault that has had a displacement in Holocene time.	Applicable  Construction of any on-site treatment facility will not be located within 200 feet of a fault that has had a displacement in Holocene time.	Applicable  Construction of any on-site treatment facility will not be located within 200 feet of a fault that has had a displacement in Holocene time.
Wetlands	FEDERAL – 16 USC 661 et. seq., Fish and Wildlife Coordination Act	Not an ARAR.	Applicable  Specified federal agencies will be contacted to help analyze impacts of capping the landfill, filling the perimeter trench and installing and operating the groundwater collection and treatment systems on wildlife in wetlands and the river.	Applicable  Specified federal agencies will be contacted to help analyze impacts of installing and operating the treatment trench, localized source control actions and any other remedial activities on wildlife in wetlands and the river.	Applicable  Specified federal agencies will be contacted to help analyze impacts of installing and operating the treatment trench, localized source control actions, the groundwater collection and treatment systems and any other remedial activities on wildlife in wetlands and the river.
Wetlands	STATE – RSA 482-A and Env-Wt 300 - 400, 600, New Hampshire Criteria and Conditions for Fill and Dredging in Wetlands	Not an ARAR	Applicable  Material excavated from wetlands and water bodies during re-contouring of the Landfill, during construction of the groundwater treatment system and interceptor trench from addressing the swale and from the activity of filling the perimeter ditch will be performed using the least environmentally damaging, practicable activities. Measures to mitigate damages will be used at all times during construction and operation of the remedy. Wetlands will be restored to the extent practicable.	Applicable  Material excavated from wetlands and water bodies during construction of the aerobic treatment trench, the vertical hydraulic barrier, from addressing the swale and from the activity of filling the perimeter ditch will be performed using the least environmentally damaging practicable activities. Measures to mitigate damages will be used at all times during construction and operation of the remedy. Wetlands will be restored to the extent practicable.	Applicable  Material excavated from wetlands and water bodies during construction of the aerobic treatment trench,, the vertical hydraulic barrier, the groundwater treatment system, from addressing the swale and from the activity of filling the perimeter ditch will be performed using the least environmentally damaging practicable activities. Measures to mitigate damages will be used at all times during construction and operation of the remedy. Wetlands will be restored to the extent practicable.

**Table 2C. Location Specific ARARs**

<u>Media</u>	<u>Requirement</u>	<u>No Action Alternative</u>	<u>1991 ROD Remedy</u>	<u>Alternative Remedy</u>	<u>Mixed Alternative Remedy</u>
Ground Water	STATE – Wellhead Protection Program	<p>TBC</p> <p>The No Action Alternative does not comply with State Plan</p>	<p>TBC</p> <p>Criteria for wellhead protection area and any State Plan promulgated pursuant to this regulation will be considered to protect the Calderwood well during implementation of this remedy.</p>	<p>TBC</p> <p>Criteria for wellhead protection area and any State Plan promulgated pursuant to this regulation will be considered to protect the Calderwood well during implementation of this remedy.</p>	<p>TBC</p> <p>Criteria for wellhead protection area and any State Plan promulgated pursuant to this regulation will be considered to protect the Calderwood well during implementation of this remedy</p>

## **Appendix B: Administrative Record Index**



DOVER MUNICIPAL LANDFILL  
ENTIRE SITE  
ADMINISTRATIVE RECORD FILE  
DOVER ROD AMENDMENT

3. REMEDIAL INVESTIGATION (RI)

1. LETTER: COMMENTS ON THE RFFS RISK ASSESSMENT

TO: DARRYL LUCE, US EPA REGION 1

AUTHOR: ANDREW J HOFFMAN, NH DEPT OF ENVIRONMENTAL SERVICES

DOC ID: 214515 05/21/2004

2. LETTER: RESPONSE TO COMMENTS ON THE RFFS RISK ASSESSMENT

TO: ANDREW J HOFFMAN, NH DEPT OF ENVIRONMENTAL SERVICES

AUTHOR: DARRYL LUCE, US EPA REGION 1

DOC ID: 214516 06/18/2004

4. FEASIBILITY STUDY (FS)

1. REPORT: REVISED FOCUSED FEASIBILITY STUDY (FS) REPORT

AUTHOR: GEOINSIGHT INC

US EPA REGION 1

DOC ID: 204932 01/30/2004

2. MEMO : DOVER SEDIMENT NUMBERS

TO: CYNTHIA CATRI, US EPA REGION 1

AUTHOR: DARRYL LUCE, US EPA REGION 1

DOC ID: 214514 05/18/2004

3. FACT SHEET: AMENDED PROPOSED PLAN

AUTHOR: US EPA REGION 1

DOC ID: 209846 06/01/2004

4. REPORT: FOCUSED FEASIBILITY STUDY (FS) ADDENDUM

AUTHOR: US EPA REGION 1

DOC ID: 210486 06/18/2004

5. RECORD OF DECISION (ROD)

1. RECORD OF DECISION: RECORD OF DECISION (ROD) AMENDMENT

AUTHOR: US EPA REGION 1

DOC ID: 214517 09/30/2004

DOVER MUNICIPAL LANDFILL  
ENTIRE SITE  
ADMINISTRATIVE RECORD FILE  
DOVER ROD AMENDMENT

13. COMMUNITY RELATIONS

1. FACT SHEET: INVITATION TO PUBLIC INFORMATION MEETING AND PUBLIC  
HEARING ON THE PROPOSED CLEANUP PLAN

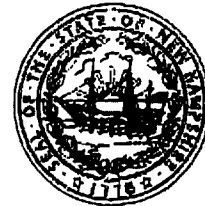
AUTHOR: US EPA REGION 1

DOC ID: 210473      06/21/2004

## **Appendix C: State Concurrence Letter**



The State of New Hampshire

**Department of Environmental Services**

Michael P. Nolin  
Commissioner

September 29, 2004

Susan Studlien, Director  
Office of Site Remediation and Restoration  
EPA - New England, Region I  
1 Congress Street, Suite 1100  
Boston, MA 02114-2023

**RE: Amended Record of Decision for the Dover Municipal Landfill Superfund Site****SUBJECT: Declaration of Concurrence**

Dear Ms. Studlien:

The New Hampshire Department of Environmental Services (Department) has reviewed the Amended Record of Decision (AROD), dated September 30, 2004, for the Dover Municipal Landfill Superfund Site (Site) in Dover, New Hampshire. The United States Environmental Protection Agency (EPA) prepared the AROD in accordance with the provisions of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986. The AROD addresses the remedial actions necessary under CERCLA, as amended, to manage potential threats to human health and the environment at the Site.

**Rational for the Amendment**

On September 10, 1991, EPA issued the original ROD (1991 ROD) for the Site. The 1991 ROD called for the remediation of the landfill and groundwater through source control and management of migration. Neither component of the 1991 ROD remedy, were built because, at the request of the potentially responsible parties (PRPs), a pilot study was performed to determine if an alternative remedy (enhanced bioremediation) could replace the source control component of the 1991 ROD remedy. Following years of additional study at the site, the PRPs have offered an alternative remedy which appears to be as protective as the 1991 ROD remedy.

**Overview of the Record of Decision**

In the 1991 ROD, EPA selected SC-7/7A as the source control component of the remedy and MM-2 and MM-4 as the management of migration component of the remedy for the Eastern and Southern Plumes, respectively.

The SC-7/7A component includes construction of: (1) a multi-layered cap including limited drainage swale sediment removal with consolidation under the cap; (2) groundwater extraction

system and clean groundwater diversion system; (3) on-site groundwater treatment system with discharge to the Cocheco River for SC-7 or discharge to a POTW for SC-7A; (4) methane gas collection with passive venting; and (5) construction of a surface run-on/run-off diversion system with sedimentation and detention basins.

The management of migration component of the remedy includes: (1) MM-2 Monitored Natural Attenuation for the Eastern Plume, which discharges to the Cocheco River; and (2) MM-4 pump-and-treat of the Southern Plume, which migrates toward the Bellamy Reservoir.

Cleanup levels for the 1991 ROD were established for sediments and groundwater.

### **Overview of the Amended Record of Decision**

The Amended ROD will change the source control remedy of the 1991 ROD from a RCRA-C landfill cap with groundwater diversion and capture to a remedy that instead will leave the landfill uncapped and install an air-sparging trench that parallels the downgradient landfill toe. Although the air-sparging trench is innovative and poses many technical challenges, the air-sparging remedy also offers the opportunity to accelerate cleanup of the wastes contained in the landfill, rather than entombing the wastes as in the 1991 ROD, potentially resulting in substantial cost savings.

The management of migration remedy remains as listed in the 1991 ROD, with one exception: arsenic-contaminated sediments that have collected in the Cocheco River, as a result of ongoing surface water and groundwater discharges, will be assessed and removed if necessary.

There are a number of technical challenges that will be posed during the design, construction and the verification phase of the amended source control remedy. To better define the technical challenges, the remedy will be installed in phases to provide opportunities for design alterations and to ensure it meets performance criteria prior to being implemented full-scale.

The air-sparging trench will capture arsenic by precipitation, volatile organic compounds (VOCs) by volatilization, and aerobically degrade tetrahydrofuran (THF) that is not volatilized. Arsenic precipitate will be removed by excavation, acid washing, or other appropriate method. VOCs and other volatile gases will be recovered for treatment, if appropriate, or discharged to the atmosphere. Stringent down-gradient monitoring will ensure that the remedy is performing as expected.

If it is found, during the phased construction of the air-sparge trench or later, that the remedy is not performing sufficiently to remove and contain the contaminants flowing from the landfill, the 1991 ROD remedy will be implemented as the contingent remedy. The 1996 Remedial Design will be followed in constructing the contingency remedy with modifications as directed by, or approved by, EPA and the State.

The Department has several concerns with the technical challenges of implementing the selected remedy. However, the Department believes that these issues may be resolved through the phased implementation (pilot study) of the selected remedy.

Given the delay in executing a full-scale source control remedy was a primary public concern identified during the public comment period for the amended remedy, EPA should be thorough and precise when establishing performance criteria, contingent remedy triggers and schedule for implementation of the phased remedy.

### **Justification for the Selected Remedy**

The Department believes that the proposed source control alternative has the potential to be as protective as the 1991 ROD remedy, may offer greater flexibility in addressing contamination at the site, and could be less expensive. However, considering the uncertainty in the ability of the alternative to be implemented and to function as designed, execution of the remedy will be phased and the source control component of the 1991 ROD will be retained as the contingent remedy. The selected remedy has the potential to reduce human health risk levels such that they do not exceed EPA's acceptable risk range of  $10^{-4}$  to  $10^{-6}$ , or New Hampshire's target risk goal of  $10^{-5}$ , for incremental carcinogenic risk and such that the non-carcinogenic hazard is below a level of concern and will not exceed a hazard index of one. Furthermore, it will reduce contaminant concentrations to levels that are consistent with Applicable or Relevant and Appropriate Requirements and To Be Considered criteria.

The estimated net present worth of the selected remedy and the contingent 1991 ROD remedy is \$19.3 million and \$32.5 million, respectively. The cleanup will be performed under a negotiated consent decree with the PRPs.

### **State Concurrence**

The Department, in reviewing the AROD, has determined that the selected remedy is consistent with the Department's requirements for a remedial action plan and meets all of the criteria for remedial action plan approval. The selected remedy establishes a remedial action that, as proposed, will remove, treat or contain the contamination source to prevent the additional release of contaminants to groundwater, surface water and soil and manages the health hazard associated with direct exposure to the contaminant source. The selected remedy will also contain contaminated groundwater within the limits of a Groundwater Management Zone and restore groundwater quality to meet the State's Ambient Groundwater Quality Standards. Ultimately, the proposed remedial action will provide protection of human health and the environment. Therefore, the Department, acting on behalf of the State of New Hampshire, concurs with the selected remedy, as described in the Amended ROD.

In striving to maximize the effectiveness of limited public and private resources, the Department continues to seek reasonable and practical solutions to the complex challenges associated with contaminated site cleanups. The partnership and dedication of EPA and the Department will speed up the achievement of our mutual environmental goals at this Site. As always, the Department stands ready to provide the guidance and assistance that EPA may require to take the actions necessary to fully protect human health and the environment in a cost-effective manner.

Sincerely,



Anthony P. Giunta, P.G.  
Director  
Waste Management Division

cc: Darryl Luce, USEPA  
Jennifer Patterson, Esq., NHDOJ  
Frederick J. McGarry, P.E., DEE, NHDES  
Carl W. Baxter, P.E., NHDES  
Richard Pease, P.E., NHDES  
Andrew Hoffman, P.E., NHDES

## **Appendix D: Responsiveness Summary**

Attachment 1: Response to comments

Attachment 2: Transcript of Public Hearing on July 19, 2004

Attachment 3: Comment Letters



**Attachment 1: Response to comments**

**United States  
Environmental Protection Agency  
Region I**

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**Appendix D  
Responsiveness Summary  
Dover Municipal Landfill Site  
Dover, New Hampshire**

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September 30, 2004

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    1. Transcript of the July 19, 2004 Public Hearing

    2. Comment letters submitted to EPA

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**Responsiveness Summary: Dover Municipal Landfill Amended Record of Decision**

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**INTRODUCTION**

EPA is proposing to change the remedy for the Dover Municipal Landfill selected in 1991. Following almost ten years of additional study, EPA has selected a remedy to replace a portion of the 1991 Record of Decision (ROD). EPA presented this remedy in a Proposed Plan during a Public Information Meeting at Dover City Hall on the evening of June 21, 2004. EPA then held a Public Hearing on July 19, 2004 to take public comment on the Proposed Plan. In addition, the EPA held a 50-day public comment period on the Proposed Plan from June 22, 2004 to August 11, 2004.

The basis of the Proposed Plan was the January 30, 2004 Revised Focused Feasibility Study (RFFS) prepared by the consultants for the Potentially Responsible Parties (PRPs). EPA provided a review and interpretation of the RFFS in EPA's June 18, 2004 Addendum (the "EPA Addendum"). EPA considered all of the previous documents provided to support the 1991 ROD and the documents produced by the PRPs prior to the RFFS. All documents EPA considered in the deliberative process have been placed in the Administrative Record for review. The Administrative Record, which is a collection of all the documents considered by EPA to choose the remedy for the Site, is available at the EPA on 1 Congress Street in Boston, MA, at the Dover Public Library on 72 Locust Street in Dover, NH, and at the New Hampshire Department of Environmental Services (NHDES) on 29 Hazen Drive in Concord, NH.

The purpose of this Responsiveness Summary is to document EPA responses to the questions and comments raised during the public comment period. EPA considered all of the comments in this document before selecting a final remedial alternative to address contamination at the Site.

Although much of the site history is provided in the Amended ROD and other site documents, a short description is provided below.

**SITE HISTORY**

The 50-acre landfill began operations in 1960 on the western outskirts of the City of Dover near the Town lines of Madbury and Barrington. The landfill accepted municipal and industrial wastes, some of which was hazardous. In 1977 the Cities of Dover and Portsmouth, along with the precursor agency of NHDES, began to investigate the area surrounding the landfill due to the proximity of the Bellamy Reservoir as well as other public and private water supplies. Based on those investigations a public water supply line was extended to residences on Tolend and Glen Hill Roads. In 1983 the landfill was designated a Superfund site. NHDES under a cooperative agreement with EPA, began a Remedial Investigation (RI) and Feasibility Study (FS) in 1984. A number of potentially responsible parties formed the *Executive Committee of the Group of Work Settling Defendants, Dover Municipal Landfill* (the "Group") to take over investigations at the site. In 1988 the Group agreed to perform a Field Elements Study (FES) that would fill data gaps

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**Responsiveness Summary: Dover Municipal Landfill Amended Record of Decision**

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in the RI and FS.

Based on the RI/FS and the FES, EPA selected a remedy for the site in a 1991 Record of Decision (1991 ROD). The Group signed a Consent Decree to perform a significant portion of that remedy in 1992 and began pre-design studies to complete the design of the remedy called for in the 1991 ROD. In 1996 the 100% Remedial Design for the landfill cap was submitted to the Agencies for review. During this time period the Group also conducted additional investigations regarding alternative remedies to the 1991 ROD and presented the results of these investigations to EPA and NHDES. Based on this information, the Group, EPA and the State signed an Administrative Order on Consent (AOC) in 1997 allowing a pilot test of one of the alternatives, *in situ* bioremediation. Concurrent with the AOC, EPA and the NHDES signed a Memorandum of Understanding (MOU) allowing NHDES to be the lead Agency in overseeing the conduct of the bioremediation pilot.

Following four years of conducting the bioremediation pilot, NHDES, with EPA's concurrence, issued a letter to the Group stating that the bioremediation pilot would not be considered for implementation at the site except under certain constraints. Specifically, the letter stated that the proposed system could only move forward if the amendments necessary for *in situ* bioremediation's operation were delivered throughout the entire formation, that is through a treatment trench (air-sparging). After considering this requirement, the Group proposed an air-sparging trench that, although different from the original bioremediation proposal, was still sufficiently similar in concept to allow consideration by EPA.

EPA, with NHDES' concurrence, examined the air-sparging trench proposal and found that it should be evaluated against the 1991 Source Control component of the 1991 ROD. EPA, along with NHDES, evaluated that Source Control component and outlined its findings in the Proposed Plan. EPA ultimately selected the air-sparging trench proposal for Source Control in this ROD Amendment.

## **HISTORY OF COMMUNITY INVOLVEMENT**

In 1983 EPA began engaging the public on first the investigation and then, later, the cleanup plan for the Site. The meetings culminated in a April 16, 1991 Public Hearing. The summation of the public's involvement and reaction to the 1991 ROD are contained in Appendix G to the 1991 ROD. Overall, the predominant sentiment was one of concern over the cost of the remedy. The Water Department of the City of Portsmouth supported the 1991 ROD.

Since 1991 EPA has met with various municipal representatives in managing the Site. In addition, EPA and NHDES have met informally with members of the public and the Cocheco River Watershed Association. EPA and NHDES personnel along with members of the public canoed the Cocheco River and viewed portions of it affected by the site in Summer 2002. Also,

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**Responsiveness Summary: Dover Municipal Landfill Amended Record of Decision**

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EPA helped the Cocheco River Watershed Association obtain a Technical Assistance Grant (TAG) from EPA to allow an independent review of the data. When it became apparent in 2003 that the 1991 ROD may be amended, EPA began planning and then held the Public Meeting in June 2004. The Public Meeting was followed by a Public Hearing in Dover City Hall on July 19, 2004 soliciting the comments that are discussed further in this document.

## **OVERVIEW OF REMEDIAL ALTERNATIVES CONSIDERED FOR THE DOVER MUNICIPAL LANDFILL**

In considering alternatives to amend an existing ROD, EPA typically compares the original selected remedy against only the No-Action Remedy and the proposed alternative(s). In this instance, EPA did examine the Source Control component of the 1991 ROD (SC-7/7A) against that of the No-Action Remedy (SC-1) and found the No-Action Remedy to be unprotective. EPA then evaluated the 1991 ROD against two other alternatives.

The remedy for the Dover Municipal Landfill is divided into two components, a Source Control component and a Management of Migration component. The purpose of the Source Control Component is to halt the migration of contaminants away from the landfill, the source. The purpose of the Management of Migration component is to cleanup contaminants that have migrated away from the source, principally the contaminated ground water.

The first alternative, called the Mixed Alternative Remedy, combines the proposed Source Control alternative of an air sparging trench, (SC-A), and retains the Management of Migration remedy, monitored natural attenuation (MM-2) for the Eastern Plume and pump and treat (MM-4) for the Southern Plume that was presented in the 1991 ROD. In this alternative, the most critical change is in the Source Control. Where the 1991 Remedy sought to **immobilize** contaminants in the landfill via capping, this alternative seeks to **mobilize** contaminants in the landfill so they may be conveyed to a treatment trench.

The second alternative, called the Alternative Remedy, proposed to amend both the Source Control component and the Management of Migration component in the Southern Plume which addresses contaminated ground water migrating towards the Bellamy Reservoir. While the 1991 Remedy called for pumping-and-treating the ground water in the Southern Plume, this alternative proposed to change the remedy to Monitored Natural Attenuation in the Southern Plume. This change was to be coupled with the changed Source Control Alternative. Only Monitored Natural Attenuation in the Eastern Plume was to be retained from the 1991 ROD.

EPA evaluated the alternatives to the 1991 ROD remedy and selected the Source Control component change from capping the landfill to treating the source contaminants through an air sparging trench as described in the Mixed Alternative Remedy. EPA also considered the proposed Management of Migration change in the Southern Plume and decided that the lack of

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**Responsiveness Summary: Dover Municipal Landfill Amended Record of Decision**

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information, coupled with the proximity of a significant regional drinking water resource, the Bellamy Reservoir, reinforced the reasons to proceed with a pump-and-treat remedy. Therefore, the Management of Migration component in the 1991 ROD for the Southern Plume, remains the same with Monitored Natural Attenuation in the Eastern Plume.

**EPA's PREFERRED ALTERNATIVE**

The only portion of the 1991 ROD that is changing is the Source Control component of the remedy. The ground water remedy in the Southern and Eastern Plumes is not changing. The change in the Source Control component is that instead of an impermeable cap and a 25-foot deep ground water diversion/interceptor trench surrounding the site, an air-sparging trench will surround the Site. Whereas in the 1991 ROD the 25-foot deep trench only served to recover and treat contaminated ground water, the air-sparging trench (SC-A) will remove, capture or destroy contaminants in the trench, allowing ground water to recharge back into area wetlands. Moreover, instead of being 25-feet deep, the air-sparging trench will span the aquifer to key into a low-permeability marine clay that underlies the site at depths up to 100 feet. An element not in the 1991 ROD that is included in the ROD Amendment is a provision to remove sediments from the Cocheco River that pose a threat to human health or the environment and evaluate indoor air vapors in buildings near the Eastern Plume.

In summary, there were three key elements to the 1991 ROD Remedy:

1. An impermeable cap over the entire landfill with a trench surrounding the waste to capture leachate flowing from the wastes and de-water the landfill (SC-7/7A).
2. Monitored Natural Attenuation of the contaminants in the ground water contaminant plume flowing to the Cocheco River (MM-2).
3. Pump-and-treat the contaminants in the ground water contaminant plume flowing to the Bellamy Reservoir (MM-4).

In this ROD amendment, EPA proposes to only change the Source Control component SC-7/7A. The other two components (MM-2 & 4) of the 1991 ROD will be implemented.

**SUMMARY OF PUBLIC COMMENTS AND AGENCY RESPONSES**

Comments received at the Public Hearing and contained in letters from the public, non-governmental organizations, public officials, and the Group are summarized below. EPA recognizes that the discussion at the Public Meeting was limited due to time constraints and the necessity of covering a number of items. This Responsiveness Summary is intended to further respond to the issues raised.

As the comments received from private citizens, non-governmental organizations and the

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Portsmouth Water Supply were similar, they have been presented together in the section "Comments Provided by the Public, Non-Governmental Organizations and the City of Portsmouth Water Supply and EPA's Responses." Each party that commented on the Proposed Plan is listed below. In parentheses next to each name are the comment numbers where a response to their comments can be reviewed. The transcript of the public hearing and individual comment letters are included as Attachments 1 and 2 to this Responsiveness Summary, respectively.

The Group, coordinated by the City of Dover, submitted comments through their consultant GeoInsight. These comments are included under "Summary of Potentially Responsible Party Comments and EPA's Responses" beginning on page 15. The comments submitted by the PRP Group are included in Attachment 2.

**Comments Provided by Private Citizens**

Private Citizens that provided comments at the Public Hearing on July 19, 2004 include:

Brian Stern for Loretta B. Chase, Dover resident (1, 41)  
 Tom Fargo, Dover resident (1, 3, 4, 5, 32, 52)  
 Doug Bogen, Portsmouth resident, Clean Water Action (1, 11, 23, 24, 33, 39, 41, 46)  
 Katherine Duncan, Dover resident (29)  
 Brian Stern, Dover resident (1, 3, 4, 6, 8, 9, 10, 18, 20, 22, 24, 39, 40, 41, 44, 46, 47, 50)  
 Mike Hodgins, Portsmouth resident (1, 29)

Private Citizens that provided written comments include:

Robert Engel (1)	Carol Straton (1, 28)	Vicki A. Lueht (1, 23, 38)
Caryn Duncan (1)	Mandy Bowden (1)	David Forbes (1, 23, 38)
Katherine Ann Duncan (22,41)	Ernest Bowden (1)	Paula Forbes (1, 23, 38)
Thomas Fargo (3, 4, 5, 6, 16, 32, 37, 52)	Catherine Pease (1, 28)	Heather Cronin (1, 23, 38)
Brian & Nancy Limberger (1, 23, 38)	Laurrie Malizia (1, 23, 38)	David Cronin (1, 23, 38)
Mary Parker (1, 14, 23, 38)	Mario Malizia (1, 23, 38)	William McCann (1, 14, 23, 38)
David Hayes (1, 23, 38)	Keith A. Foley (1, 14)	Rebekah Brooks (1, 23, 38)
K. Ian Daniel (1, 23, 38)	Anonymous (1, 23, 38)	Henry Cronin (1, 23, 38)
Allen G. Barbi (1, 23, 38)	Mark Gemas (1, 14, 24, 38)	Marie Trindade (25)
Richard Auclair (1, 14, 23, 38)	Lorie Gemas (1, 14, 24, 38)	Art Corte (1, 14)
Kathryn Daniel (1, 23, 38)	Elizabeth Barbi (1, 23, 38)	Audrey Covert (1, 14, 23, 38)
Joan Landry (1, 23, 38)	Katherine Frick-Wold (1, 23, 38)	Dorothy Buell (1, 23)
	John Wold (1, 23, 38)	Richard Minnon (41)
	Linda Grivori (1, 23, 38)	Loretta B. Chase (1, 38, 41)



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**Comments Provided by Non-Governmental Organizations**

The non-governmental organizations that provided comments included:

Clean Water Action (1, 2, 14, 22, 37, 41, 46)

New Hampshire TAG Force (1, 2, 3, 7, 8, 9, 11, 12, 14, 15, 16, 17, 18, 19, 20, 22, 26, 27, 30, 34, 37, 40, 41, 42, 46, 48, 49, 50, 51, 52)

**Summary of Comments Provided by the Public, Non-Governmental Organizations and the City of Portsmouth Water Supply:**

Generally, the public expressed doubts about EPA's selected remedy. A few citizens expressed support for the proposed amendment, but issued the caveat: 'only if the remedy is implemented in a timely manner.' By far the public's largest concern was that in all this time, nothing has happened at the site to abate contamination. This concern and others are conveyed below. The comments have been summarized and collected into appropriate categories. The main categories are:

- Implementability.
- Time.
- Cost.
- Public Safety.
- Contingency Remedy.
- Public Notice.
- Contamination.
  - Ground Water Contamination
  - Surface Water Contamination
  - Sediment Contamination
  - Indoor Air Contamination
- Nuisances

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**Comments and EPA's Responses**

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**Implementability**

These comments address the public's concern that the amended remedy may fail to address contamination at the site.

**Comment 1: Air sparging is an un-proven technology and very complicated. If it fails it may worsen the situation with respect to contamination. Because there is a drinking water reservoir nearby, this site should not be used to test innovative remedies.**

**EPA's Response:** Air-sparging has been proven in many applications for removing the majority of contaminants found at the site. However, these comments are correct in that the air-sparging technology has not been applied to a municipal landfill setting to perform all the functions proposed (e.g., sparging of volatile organic compounds (VOCs), iron and arsenic precipitation, and enhanced bioremediation). A discussion of air-sparging is provided in Appendix L in the RFFS.

Acknowledging the uncertainty of employing a full-scale version of the air-sparging trench, EPA required that the project be phased to ensure its efficiency, and that monitoring of the performance be quite rigorous. If the air-sparging technology proves ineffective, EPA will require that the landfill be capped, as described in the Source Control component of the 1991 ROD Remedy.

In the event that the air-sparging trench fails, the pump-and-treat remedy in the Southern Plume would control any further escaping contaminants that are migrating in the Southern Plume toward the Bellamy Reservoir. However, a successful air-sparging remedy is expected to be less expensive, yet has the potential to clean the landfill faster than capping and decrease the potential for contaminants to escape capture or treatment.

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**Comment 2: Air-sparging needs extensive testing.**

**EPA's Response:** EPA agrees but also recognizes that air-sparging is not a completely unknown technology. It has been used at many sites to remediate ground water as outlined in Appendix L of the RFFS.

However, given the combination of contaminants to be treated by the air-sparging technology at this site, EPA is requiring that the air-sparging trench be implemented in segments. EPA will also select the locations where the segments will be placed, factoring contaminant concentrations and depth to the marine clay layer in order to test the constructability and implementation of the trench. In addition, rigorous monitoring will evaluate the merits of air-sparging with respect to

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site-specific characteristics (e.g., inorganic precipitation and success of its removal, impacts of oxygen demand on hydraulic parameters in the trench and surrounding aquifer).

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**Comment 3: The function of the air-sparging trench can be compromised by the iron precipitate that will form in the air-sparging wall causing its ultimate failure. Removal of the iron precipitate will be necessary and potentially very difficult. Also, under some conditions, the arsenic could be mobilized in one large "slug." Therefore, the conditions in the air-sparging trench will need to be closely monitored and arsenic should not be left in place. How frequently will the iron and arsenic need to be cleaned from the trench?**

**EPA's Response:** EPA was also very concerned with these issues when this remedy was proposed. Consequently, EPA requested that the Group collect additional information concerning arsenic fouling in the wall, various technologies to address fouling, and to model the results. The results of the modeling are presented in Appendix K of the RFFS. In addition to this modeling, the remedy will include extensive monitoring of both the treated water and the solid matrix (both the native aquifer materials and the porous material in the air-sparging trench). Currently, the method for removing arsenic from the trench is to excavate the trench. The modeling in Appendix K indicates that excavating arsenic from the trench will need to be done only one time. However, monitoring and further field investigations may indicate that either additional excavation is necessary or that alternative cleaning methods, such as acid-washing, may be used. Operation and monitoring of the air-sparging trench will ensure that arsenic is captured only inside the air-sparging trench and is not re-released to the surrounding aquifer. If it is shown that arsenic is not captured and retained in the trench, the contingency remedy will be implemented.

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**Comment 4: Converting the air-sparging trench into a ground water extraction trench may be confounded by variable gradients along the length of the trench. The result could be hydrologic short-circuiting allowing contaminants to be conveyed and to break-out into areas that were previously uncontaminated. Not capping the landfill and converting the trench to a ground water extraction system will recover much more water.**

**EPA's Response:** If the air-sparging trench is converted to recover ground water, the landfill will also be capped. Hydrologic short-circuiting is a valid concern in both a vertical and horizontal sense. The current proposal is to segment the trenches to prevent this. In the RFFS the segments shown are schematic and dependent upon the results of the pre-design investigation and the preliminary phases of construction. The construction and operation of the air-sparging trench will be phased so that any problems can be identified and resolved prior to the full construction of the trench. In a manner similar to concerns regarding clogging of the trench with iron-arsenic precipitate, the problem of hydrologic short-circuiting underscores the need to conduct careful monitoring of the implementation and operation of the air-sparging trench.

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**Comment 5: The air-sparging trench should be re-located to a position along Tolend Road. Re-positioning the trench into this location would better address the eastern ground water contaminant plume and eliminate contaminant discharges to the Cocheco River, would improve the constructability and maintenance of the air-sparging trench and shorten the length of the trench.**

**EPA's Response:** EPA recognizes the utility of this idea; however, RCRA Source Control remedies must be conducted at the limit of waste, in this case the edge of the landfill. In addition, the selected remedy, as outlined in the Amended ROD, better protects ground water. Moving the trench away from the edge of the landfill unnecessarily increases the distance the contaminants must migrate to arrive at the air-sparging wall.

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**Comment 6: The EPA admits that there are many unknowns and many Pre-design investigations that need to be done. Rather than go forward with a plan based on guesswork and relying on a contingent remedy, why not move forward with the 1991 ROD?**

**EPA's Response:** The 1991 ROD Source Control remedy has its share of unknowns and guesswork as well and EPA believes that the proposed remedy has several advantages over the 1991 ROD. Key among these advantages is the fact that wastes are actively removed from the landfill as opposed to interring them in the landfill over many years. Another advantage is that the air-sparging trench will span the entire aquifer and treat all of the contaminants, rather than only the upper 25 feet of the aquifer. Air-sparging will decrease the amount of time contaminants are allowed to remain in the landfill, providing fewer opportunities for contaminants to migrate through the marine clay. Lastly, it will cost less in the long-run.

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**Comment 7: The trench may create hydrologic short-circuiting. How will the trench be abandoned to ensure that short-circuiting does not occur? Will the trench create unexpected hydraulic conditions that will cause ground water to migrate in a direction not desired?**

**EPA's Response:** At the conclusion of the remedy the ground water will not contain contaminants above concentrations that pose a risk to human health or the environment. The arsenic-contaminated media in the trench will be removed, disposed of appropriately, and the trench will be backfilled with a material similar to the surrounding aquifer or allowed to collapse in on itself. The end result should create a ground water environment similar to that which existed before the landfill. This response does not answer the question about whether or not the trench will create unexpected hydraulic conditions.

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**Comment 8: How will EPA and NHDES determine if the trench is performing as expected? What will be the layout of sensors and monitoring wells? How will "failure" be determined?**

**EPA's Response:** The specific details of the monitoring network and technique will be decided after conferring with national experts, including those at EPA's Ada Oklahoma lab and at the University of New Hampshire and after evaluating the results of the pre-design investigation. In general, a monitoring outline will include both ground water and solid phase monitoring of the treatment trench and the aquifer both up-gradient and down-gradient of the air-sparging trench. Likewise, the specific determination of "failure" will be arrived at after additional study and consultation with experts on this technology. However, a general definition of failure means that the treatment trench does not reduce all site contaminants to cleanup levels within the treatment wall such that ground water on the down-gradient side of the trench meets cleanup levels during and after operation of the air-sparging trench and the landfill does not reach clean closure.

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**Comment 9: Monitored Natural Attenuation (MNA) is not an appropriate remedy for the eastern ground water contaminant plume. MNA was determined to be an inappropriate remedy for the Southern Plume based on the lack of information showing that it had a probability that it would be successful. Conditions have not been cited to indicate that MNA will be a successful remedy in the Eastern Plume. The cost to implement a pump-and-treat remedy in this area is incremental compared to an MNA remedy.**

**EPA's Response:** EPA does consider Monitored Natural Attenuation (MNA) to be an appropriate remedy for the Eastern Plume. In the Eastern Plume the Source Control portion of the remedy is expected to stop contaminants from entering the ground water, the geochemical changes expected in the aquifer coupled with the relatively fast ground water flow rates are expected to reduce contaminant concentrations rapidly. The contaminant mass in the Eastern Plume is also relatively small, the Cocheco River, the eastern boundary of the plume, lies less than 800 feet away. Modeling in 1991 found that MNA would attain cleanup levels in approximately the same time-frame as pump-and-treat. To confirm the relatively fast reduction in contaminants, five years after the Source Control Remedy has been implemented, EPA will evaluate such factors as decreasing contaminant trends and geochemical conditions in the aquifer matrix to ensure the restoration of ground water in the Eastern Plume. If these findings demonstrate that MNA is not working effectively to restore the aquifer in a reasonable amount of time, the contingent remedy of pump-and-treat may be implemented. These five-year reviews will continue as long as contamination exists at the Site above levels that are protective of human health and the environment.

Pump-and-treat was selected to address the Southern Plume because ground water flows relatively slowly in this aquifer, and it is expected that anaerobic conditions will prevail through much of the aquifer despite the operation of the air-sparging trench. Anaerobic conditions in the

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southern portion of the aquifer do not lend themselves to degradation of the contaminants present (arsenic, benzene, tetrahydrofuran, and vinyl chloride) in that plume. Given that, along with the fact that Site contaminant concentrations appear to be increasing in the Southern Plume for arsenic and tetrahydrofuran, and the proximity of the Bellamy Reservoir, a Class "A" Reservoir that serves the drinking water needs of a good portion of southeastern New Hampshire, a pump-and-treat remedy was retained.

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**Implement the 1991 ROD remedy now and cap the landfill**

**Comment 10: The Proposed Plan represents in its assessment of short term risks that the amount of material excavated for the trench is minimal compared to the fill necessary for the cap. Yet the amount of fill necessary for the trench will be double, approximately 40,000 cubic yards, rather than what was stated in the Proposed Plan (19,000 cubic yards). Therefore, the true comparison should be 40,000 cubic yards for SC-A instead of 19,000 cubic yards. When compared to SC-7/7A this becomes a more comparable number next to the necessary 165,000 cubic yards.**

**EPA's Response:** While EPA still stands by its estimate of 19,000 cubic yards, even accepting the double amount of 40,000 cubic yards, that volume represents only about one-quarter of the amount of fill necessary to implement the 1991 ROD remedy. That results in 75% more truck traffic and worker exposure to dust, equipment accidents and exposure to some amount of contamination during handling.

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**Comment 11: Clean closure of the landfill will require just as much fill to attain grades and therefore, the cost savings will disappear. An additional problem is that short-term risks may be greater in that when clean closure is performed the truck traffic and dust issues will be the same as now, yet the population in the area will likely have increased. Therefore, it is better to build the cap now.**

**EPA's Response:** Once the landfill reaches clean closure, that is the hazardous wastes in the landfill are no longer leaching concentrations of contaminants to ground water that pose a risk to human health or the environment, state regulations for solid waste landfill closure will dictate the type and grade of cap necessary for the landfill.

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**Comment 12: EPA forments misconceptions regarding SC-A such as:**

- SC-7/7A would cost more due to recontouring, 150,000 yards of fill, and construction of a RCRA type "C" cap. Yet, closing the landfill will still require bringing in fill to attain similar grades.
- SC-7/7A will entomb the waste so that it never "goes away." This is inaccurate in that biodegradation and other mechanisms will gradually reduce concentrations.



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- **SC-A will wash all of the contaminants out of the waste leaving a benign pile of rubble. This too is inaccurate as flushing over a very long time would be required to do this.**

**Based on the preceding, SC-A offers no advantage over SC-7/7A. Therefore, why did the PRPs and the Agencies abandon the SC-7/7A remedy? EPA should construct SC-7/7A as proposed in the 1991 ROD.**

**EPA's Response:** See Comments 10 and 11 for a response to the issue raised in the first bullet.

With regard to capping the landfill, although it is true that biodegradation will occur under the cap, not all site contaminants are amenable to this process. Benzene is unlikely to degrade under the cap and arsenic will not degrade. Volatile organic compounds found in the landfill will degrade but the bio-degraded endpoint for most VOCs is typically vinyl chloride which is a known human carcinogen. EPA finds this to be an unacceptable result, nor would the remedy be protective.

EPA agrees that a long period of flushing will be required to clean the landfill; however, capping will leave wastes in-place over a greater length of time.

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**Comment 13: There will be fewer challenges by implementing the 1991 ROD rather than moving forward with the proposed amendment.**

**EPA's Response:** While the Alternative Source Control component does pose challenges, a side-by-side evaluation of the Alternative Source Control component and the 1991 Source Control component against the criteria set out in the National Contingency Plan (NCP) reveals that the challenges are comparable to those presented in the 1991 ROD. A detailed evaluation can be found in the Comparative Analysis of the ROD Amendment, the RFFS, and the EPA Addendum. In addition, if the alternative Source Control remedy works as proposed, the cost benefits will be greater than those offered by the 1991 ROD remedy.

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## **Time**

**Comment 14: Implementing a remedy at the site has been delayed too long.**

**EPA's Response:** EPA agrees and expects the Amended remedy to be implemented quickly. In fact, EPA believes that the past 10 years of ground water sampling and previous pre-design investigations provide an excellent baseline of data from which to launch the required future pre-design studies and hasten the remedial design and construction. While there are still some data gaps to fill in, it is not anticipated that the necessary pre-design studies will be completed within one year of issuing this ROD Amendment.

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**Comment 15: Extensive testing of air-sparging will add more delay and cost to a project that has been long-delayed.**

**EPA's Response:** Although testing the air-sparging technology will take additional time and resources, EPA believes that this investment will ensure that a functional remedy is deployed and that it works effectively and efficiently. See also Comment 14.

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**Comment 16: There appears to be a conflict regarding the cleanup times with various documents citing 20 or 30 years and 75 or 100 years.**

**EPA's Response:** A detailed discussion of cleanup times is provided in Appendix N of the RFFS and is summarized in the Addendum. There are three areas of cleanup: the area within the landfill, the Eastern Plume, and the Southern Plume. With respect to this Amended Record of Decision, the important element is the time-frame for the cleanup of the landfill area. A comparison of just SC-7/7A and SC-A follows:

Estimated Cleanup Times in Years for Landfill Area		
Contaminant	1991 ROD (SC-7/7A)	Amended ROD (SC-A)
Arsenic	> 100	92 to > 100
Vinyl chloride	19 to >100	23 to 28
Benzene	10 to 19	24 to 65
1,2 c-DCE	9 to 11	9 to 13
Tetrahydrofuran	10 to 11	9 to 13

While it appears that cleanup times are similar for all compounds, this similarity is due to the assumptions inherent in the model. The data in the above table only consider the time to cleanup the ground water in the aquifer under the landfill. For example, the chart depicts that it is quicker to clean up benzene in the aquifer with the 1991 ROD than the Amended ROD. However, this is artificial, the model assumed that the loading rate (the amount of benzene that leaks from the landfill wastes) is lower under the 1991 ROD than the Amended ROD. This is true only if the ground water impact of the long-term contribution of the contaminants under the cap are discounted. But this long-term impact cannot be discounted as a continuing source to ground water as long as contaminants remain in the landfill. In fact, the flushing action of the ROD Amendment remedy will cause all of the contaminants to move into the ground water and through the treatment wall much more quickly than the 1991 ROD would send the contaminants for treatment in the leachate diversion/interceptor trench via gravity drainage.



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It should be noted that these time-frames are derived from a model and that the assumptions in the model drive much of the results. EPA believes that assumptions and data for this model will be greatly improved through pre-design investigations, preliminary results of the first phases of the Source Control remedy, and the implementation of pump-and-treat in the Southern Plume.

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**Comment 17: The EPA and NHDES should accelerate the testing and implementation of the Management of Migration remedy MM-4 in the Southern Plume to have it operating as soon as possible.**

**EPA's Response:** EPA agrees and will work with the Group to ensure that this is done as quickly as possible and that pre-design investigations are conducted quickly, efficiently and are completed within one year of issuing this ROD Amendment.

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**Comment 18: The time to get a remedy going will be considerable. Work may not begin at the site until 2008 and won't be completed until at least 2010. If MNA in the Eastern Plume is determined to not be working, active remediation would not begin until 2017, 34 years after the site was listed on the NPL. Please consider the speed that the remedies can be implemented.**

**EPA's Response:** EPA is cognizant of the considerable time-frame of this project but does not agree that active remediation would not begin until 2017. Instead, EPA expects portions of the air-sparging trench to be constructed by late 2006. See Comments 14, 15 and 17 for further discussion of time frames.

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**Comment 34: Why is 75 years cleanup time for arsenic in the Eastern Plume acceptable to EPA? Historically, "reasonable time frames" have been twenty to thirty years. Should not something be done to expedite the removal of arsenic from ground water?**

**EPA's Response:** There is no specific number of years that can be defined as acceptable for Superfund cleanups. Reasonable time frames vary from site to site depending on the specific site conditions. For the Dover Landfill site, factors to be considered include the rate of contaminant decrease over the first five to seven years after the source control component is operating, levels of sediment contaminant concentrations in the Cocheco River, and restoration rate of the ground water aquifer. Should this evaluation or any successive evaluation by EPA find that MNA is not successfully addressing ground water contamination, the pump-and-treat contingency will be implemented.

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**Comment 20: The present plan presents contingencies that open the door for further delay through appeals. The triggering mechanisms for the contingent remedies are not well-defined.**

**EPA's Response:** The Proposed Plan functions as an overview for the remedy and does not contain the level of detail the comment is seeking regarding triggering mechanisms for the contingent remedies. Some details appear in the RFFS, EPA's Addendum and the Amended ROD that incorporate significantly more detail concerning these triggers. In addition, EPA will also write a very specific scope of work that will further direct when the contingencies will be implemented.

EPA must also point out that CERCLA does not allow appeals of EPA's decisions documents. Moreover, this remedy will be conducted by the Group through a Consent Decree (with the attached scope of work).

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**Comment 21: The proposed remedy, SC-A + MM-2/4, should not be delayed by any pre-design activities.**

**EPA's Response:** Pre-design investigations are required to effectively design and employ a remedy and to identify the means to monitor its future performance. Because there has been substantial sampling and monitoring of this Site for the past ten years, EPA does not anticipate that these pre-design studies will require more than a year to complete once the Amended ROD is issued. EPA will endeavor to move these items forward as fast as possible.

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**Cost**

**Comment 22: The proposed remedy has a long time-frame for cleanup. The time-frame exceeds that for the cost estimate by more than double and such a long operation will pose an undue burden on future populations.**

**EPA's Response:** EPA agrees that any remedy for this Site will continue into the future for some time, but believes that the selected remedy offers some time-saving advantage over the 1991 ROD. The nature of remedial activities at large, uncontrolled landfills inherently requires a considerable time-frame to attain cleanup goals but, unlike the amended remedy, the original 1991 ROD remedy also has significant long-term costs that will be incurred over a potentially greater time-frame. If the selected remedy is successful, all future maintenance and monitoring costs may be eliminated or greatly reduced over that of the 1991 ROD.

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**Comment 23: The proposed remedy considers financial impact above public health and environmental impacts.**

**EPA's Response:** Any remedy considered by EPA must first meet the baseline requirement of protecting human health and the environment. Although cost must be considered by EPA, it is a modifying criteria which is evaluated only after the baseline criteria are met. Based on EPA's analysis, SC-A, the amended ROD's Source Control component, is equally if not more protective of human health and the environment as SC-7/7A, the 1991 ROD Source Control component. In accordance with the NCP, when several remedial alternatives are equally protective, cost considerations can be used as a balancing criteria in the selection of a remedial alternative.

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**Comment 24: If the air-sparging trench is unsuccessful, the landfill will still need to be capped and any cost savings from the trench will be gone. Carefully examine the costs against the benefits and drawbacks.**

**EPA's Response:** EPA is quite aware of this possibility and has incorporated the phased implementation of trench segments as a way to not only minimize the cost risk but also ensure protectiveness along the way.

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**Comment 25: Superfund monies should be spent on this site to complete it.**

**EPA's Response:** Superfund monies can only be spent on the site if there are no PRPs or if the PRPs refuse to do the work. Even in those cases, there is no guarantee that Superfund monies will be available in any given year to fund a site cleanup. At this site there is a PRP Group that signed a Consent Decree with EPA to implement and finance a significant portion of the 1991 remedy. While that Consent Decree must be revised to include this Amended ROD, EPA believes that this Group will also sign the revised Consent Decree to implement and finance the amended remedy.

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**Comment 26: Are the costs of clean closure, the proposed pre-design activities, the design, and agency oversight included in the costs? Is the cost of operating the blower for potentially 75 years also factored into the costs?**

**EPA's Response:** The short answer to this question is yes. However, these costs are not absolutes, but intended to compare the estimates known for each alternative. The costs estimated include remedial design, remedial action, oversight and 30 years of operation and maintenance of the selected remedy. Because all the tasks involved of each of these phases of the remedy are known only in general terms at the writing of the ROD, a percentage factor is applied to the overall capital cost of the remedial action to determine design, oversight (and O&M) costs. Operation and maintenance costs are only carried out to 30 years based on the speculative value

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of time and performance beyond 30 years.

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**Comment 27: EPA should implement pump-and-treat in this area as soon as possible using Superfund resources.**

**EPA's Response:** See response to Comment No. 25.

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**Public Safety**

**Comment 28: Any new clean up action should not cause further environmental damage or have an adverse effect on public health.**

**EPA's Response:** Agreed. As part of its evaluation of the alternatives, EPA is required, as a threshold matter to determine that the selected remedy is protective of human health and the environment.

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**Comment 29: When will it be safe to swim in the Cocheco River? What is the risk for people who swim in the Bellamy Reservoir?**

**EPA's Response:** Currently, there are no restrictions on swimming in the Cocheco River because of contamination from the Landfill. However, there are a limited number of isolated areas along the south bank of the River that have elevated arsenic concentrations in the sediment, posing a border-line long-term risk to potential waders and/or swimmers who come in contact with the sediment in that area.

EPA calculates risk based on the exposure of the most sensitive populations using the maximum concentrations found at the site. In the case of the Cocheco River, the contaminant that poses nearly all the risk is arsenic which is found in both-surface water and sediment. In the surface water, concentrations are at approximately the same normal concentrations found in any stream in New Hampshire. Therefore, surface water in the River (and in surface water adjacent to, and down-stream of the Site) poses no greater risk from arsenic or other Site contaminants and is safe for swimming. For sediments, however, arsenic concentrations are significantly elevated in areas adjacent to the River and in other parts of the Site.

EPA performed a risk calculation that determined that if a child were to climb down the steep hill and swim in the river, get sediment (mud) over portions of their body and accidentally eat 100 mg of mud in the area with the highest concentrations of arsenic during every exposure period, that over their lifetime they would not be at an excess risk of cancer or non-cancer problems that EPA believes is significant. However, EPA did note that the risks were borderline (just under) results that could be significant, therefore EPA believes that it is appropriate to continue

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monitoring in this area. The Amended ROD includes a requirement that sediments in the Cocheco River be periodically monitored to ensure these risks do not increase, and, should that happen, the Amended ROD requires that the sediment be removed.

The Bellamy Reservoir is a Class A water body used as a drinking water source for the greater seacoast area. Consequently, there is a swimming ban in this water body. However, it must be stated that there is currently no evidence of impacts to the Reservoir from landfill contaminants and, therefore, would pose no additional risk to a swimmer.

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**Comment 30: Indoor air samples should be collected to evaluate potential impacts to homes above the Eastern Plume. The air-sparging trench will concentrate VOC vapors and potentially create an indoor air risk.**

**EPA's Response:** Previous sampling, which followed guidelines that NHDES developed, indicated that there were no impacts from the Site on indoor air in homes along Tolend Road. EPA recently issued draft indoor air vapor guidance and will be re-assessing those homes near the Eastern Plume in the near future. With respect to the air-sparging trench the comment is correct that VOCs will be concentrated; however, emissions from the trench will be monitored and managed to ensure that indoor or outdoor air action levels are not exceeded.

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**Contingency Remedy**

**Comment 31: The Source Control Component of the 1991 ROD remedy should be continually updated to facilitate timely implementation as a contingency alternative.**

**EPA's Response:** EPA fully agrees with this comment and has incorporated into the Amended remedy a requirement that the 100% cap design completed in 1996 for the 1991 ROD remedy be updated simultaneously with the design of the air-sparging trench. Should the capping contingency become a reality, the updated design will allow implementation with little delay.

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**Public Notice**

**Comment 32: If contaminated sediments are going to be excavated in the Cocheco River the local Conservation Commission should be allowed to review and comment on the plan.**

**EPA's Response:** While CERCLA gives only the State a review and comment role in implementing Superfund remedies, it is EPA's practice to periodically meet with local Conservation Commissions within the affected areas to keep the Commission aware of the remedial activities. EPA fully anticipates this practice will continue at the Dover Landfill Site.

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**Responsiveness Summary: Dover Municipal Landfill Amended Record of Decision**

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**Comment 33: Consider a separate public meeting for Portsmouth residents. Also, summer is a difficult time to schedule these meetings.**

**EPA's Response:** Although summer may be a difficult time for all interested parties to attend a public meeting, the 50-day public comment period provided another avenue for submitting comments. Typically, EPA holds public meetings in the community where a site is situated, however, EPA is willing to consider holding any future public hearings in both communities.

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**Comment 34: The public should be appraised of the anticipated impacts to wetlands caused by the remedial alternatives. The public should be informed of, and provided an opportunity to review and comment on pre-design studies.**

**EPA's Response:** EPA and NHDES will work with the local Conservation Commission to keep the public informed of potential wetland alterations. EPA also periodically issues fact sheets and holds occasional public informational meetings to keep area residents aware of site cleanup activities.

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**Comment 35: The Department of Public Works, City of Portsmouth, should be kept informed of water quality data and project schedules regarding the Southern Plume and Bellamy Reservoir.**

**EPA's Response:** EPA is more than willing to share confirmed data concerning water quality and upcoming work with the City. In fact, EPA believes the City may routinely gather information that may be useful to the monitoring work envisioned for the remedy and looks forward to discussing this mutual information sharing.

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**Comment 36: Provisions should be made with respect to notifying the City of Portsmouth and general public if contamination is found in the Bellamy Reservoir or if contamination appears likely. A program should be devised that educates the public about risk and safety from potential contamination of the Bellamy Reservoir.**

**EPA's Response:** EPA informs the community about activities at the site via the updates to the site mailing list and periodic press releases. Regarding imminent threats, a Health and Safety Plan will be developed for the Site that will notify hospitals and public water supplies if contamination threatens a drinking water resource or other exposure route.

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**Responsiveness Summary: Dover Municipal Landfill Amended Record of Decision**

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**Contamination**

**Ground Water Contamination**

**General**

**Comment 37: Contaminants will continue to flow to both the Cocheco River and the Bellamy Reservoir under this plan.**

**EPA's Response:** The Source Control Remedy will halt the flow of contaminants from the landfill and into the Eastern and Southern Plumes. Therefore, only those contaminants remaining in the extended plumes when the Source Control construction is complete will continue migrating. Remaining contaminants in the Eastern Plume will continue to discharge to the Cocheco River. However, the Eastern Plume has been modeled to attain cleanup levels in approximately 5 to 7 years and if not, the need to implement the contingent active remediation system will be assessed. Contaminants flowing towards the Bellamy Reservoir (Southern Plume) will be intercepted with the pump and treat system component of the remedy for this plume

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**Comment 38: No contaminants from the landfill should discharge into either the Cocheco River or the Bellamy Reservoir. Ground water in contaminant plumes should be restored to end the contamination.**

**EPA's Response:** See response to Comments 9, 16, and 37.

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**Comment 39: TCE has been linked to increased incidences of non-Hodgkins lymphoma in the area surrounding the Pease Air Force Base. Pease is also a Superfund site with many operable units. TCE is also found at the Dover site. Arsenic, although naturally found in New Hampshire, has a standard that, although low, (10 ug/kg), is a compromise and may not be found to be protective of human health in the future and the standard decreased further. Regardless, these contaminants are not wanted in increased concentrations in the watershed.**

**EPA's Response:** Arsenic is a principal contaminant of concern in ground water at the Dover Site. Because the ground water aquifer is a potential drinking water aquifer Safe Drinking Water Act Maximum Contaminant Levels (MCLs) have been identified as relevant and appropriate chemical specific standards. The MCL for arsenic in drinking water is 10 ug/kg. Through past studies at the Site naturally occurring levels of arsenic, or background levels, have been determined to also be 10 ug/kg. Since future ingestion of ground water is the primary risk at the Site, the interim ground water cleanup level for arsenic is set at 10 ug/kg.

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**Responsiveness Summary: Dover Municipal Landfill Amended Record of Decision**

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**Comment 40: The Agencies must be careful that the ground-work for a technical impracticability waiver is not being lain by the PRPs with respect to arsenic in ground water.**

**EPA's Response:** EPA has a very specific protocol for establishing a technical impracticability waiver under CERCLA §121(d)(4)(C). EPA's "Guidance for Evaluating the Technical Impracticability of Groundwater Restoration", dated September, 1993, points out that restoration of contaminated ground water is one of the primary objectives of the Superfund program. In general a party must demonstrate and document a complex assessment of site specific characterizations of the technical impracticability of restoring groundwater before EPA will even consider suspending remediation. EPA has not reviewed any data from this site to date that would justify a technical impracticability waiver.

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**Eastern Plume**

**Comment 41: Contamination of the Cocheco River is being allowed to proceed under this remedy. The Cocheco River is a recreational resource that should not be allowed to be further polluted. EPA already knows that arsenic is leaching into the Cocheco River, so why is there only a contingency plan and no action?**

**EPA's Response:** EPA disagrees that there is only a contingency plan and no action planned for the Eastern Plume which discharges to the Cocheco River. Monitored Natural Attenuation is a viable remedy that was selected in the 1991 ROD for this area and is retained in the Amended ROD.

The product of the current discharge is an iron-rich sediment that contains a small amount of arsenic (maximum concentration is 1,520 mg arsenic / kg of sediment). This does not pose a human health risk based on EPA's risk assessment. See Comment No. 29 regarding risk calculations and considerations. State regulations included as an ARAR for the Site require remedial action should a ground water discharge cause a violation of surface water quality standards. Currently, the discharge of ground water to the Cocheco River is not causing a violation of surface water quality standards.

Once the Source Control component of the selected remedy is implemented, it is expected to immediately halt the flow of additional contaminants from the landfill to the Cocheco River and profoundly change the geochemistry of the Eastern Plume. A ground water model has shown that once the Eastern Plume is cut-off from the source, it will be restored within 5 to 7 years. EPA's contingent remedy is based on this 5 to 7 year period.

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**Southern Plume**

**Comment 42: With respect to the Southern Plume the following is needed:**

- **Additional monitoring wells are needed to provide a complete vertical profile.**
- **Additional analysis is required.**
- **The nature of the marine clay must be determined.**
- **Sediments in the Bellamy Reservoir should also be sampled in at least two locations annually.**
- **Well cluster MW-102 should be sampled.**
- **Ground water flow and geology in the Southern Plume needs to be better characterized.**

**EPA's Response:** EPA agrees and notes that these are all part of the pre-design investigations that EPA is requiring of the Group. Although sediment sampling in the Bellamy Reservoir was not considered; it may be valid and will be evaluated for inclusion in these studies.

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**Comment 43: The City of Portsmouth is interested in reviewing and commenting on monitoring in the Southern Plume.**

**EPA's Response:** See response to Comment No. 35.

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**Surface Water Contamination**

**Comment 44: The Cocheco River is a regional resource that Dover and neighboring communities have spent much money and effort to restore for aesthetic benefits among other reasons. The Cocheco River is a TMDL listed river with dissolved oxygen demand as the reason. The Cocheco River receives the lion's share of contaminants from the site and this will increase the dissolved oxygen demand, further down-grading the conditions in the river.**

**EPA's Response:** The oxygen demand of the ground water and surface water has not been measured in the vicinity of the Cocheco River impacted by the landfill. This measurement may be a valid measurement to collect along with nutrient values, when evaluating arsenic-contaminated sediments. The operation of the air-sparging trench may provide sufficient oxygen to reduce the oxygen demand of the ground water entering the River. Although EPA cannot respond to a low dissolved oxygen issue in the Cocheco, the State has independent authority under State water laws to address this issue.

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**Responsiveness Summary: Dover Municipal Landfill Amended Record of Decision**

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**Comment 45:** In the event the Bellamy Reservoir becomes contaminated with Site contaminants, provisions should be made to either treat affected water or provide for an alternative source, including reserving financial resources for the City of Portsmouth to ensure water quality.

**EPA's Response:** CERCLA does not provide for or authorize separate funding to ensure an alternative source of water is available in the event of contamination. What CERCLA does provide for is the ability of EPA to take emergency action in the event of a situation that presents an imminent and substantial endangerment to the public health or welfare. These situations are evaluated when they arise and the decision whether or not to take action is made at that time.

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**Sediment Contamination**

**Comment 46:** Arsenic concentrations in the Cocheco River are unacceptable.

**EPA's Response:** See response to Comment No. 41.

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**Comment 47:** Why doesn't EPA analyze for other sediment contaminants at the site such as lead, mercury or cadmium?

**EPA's Response:** EPA based the Environmental Monitoring Plan on previous results that showed low levels of other metals, including lead, mercury, cadmium, and chromium, in sediments surrounding the site. These results are discussed in Section 7 of the Wehran Remedial Investigation done for NHDES. EPA acknowledges that more recent sampling has revealed additional data concerning site characteristics and contaminants that the Environmental Monitoring Plan does not address. As part of Remedial Design and Remedial Action this Plan will be updated to include new information.

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**Comment 48:** There are many locations of testing that exceed the first tier for sediment sampling, yet have not been sampled under the second tier protocol.

**EPA's Response:** This type of sampling is expensive and can provide confounding results if not set up correctly. EPA is waiting to conduct this sampling after the Group prepares and EPA approves a work plan, which will occur during the pre-design activities.

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**Comment 49:** Arsenic contaminated sediments on the "...landfill side of the Cocheco River exceed the threshold cancer risk of  $10^{-4}$  and NOAA freshwater screening levels. Human health risks posed by arsenic concentrations in Cocheco River sediment are already bordering acceptable risk ranges established by EPA." Therefore, it is likely that a second or third level of ecological assessment must be completed. The ultimate result will be that

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**Responsiveness Summary: Dover Municipal Landfill Amended Record of Decision**

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**EPA will require the removal of impacted sediments. Rather than remove the sediments, why not eliminate the source and instead conduct air-sparging adjacent to Tolend Road?**

**EPA's Response:** EPA believes the commentor is confused and possibly misread the available information. Based on a review of the data, the human health risk posed by arsenic-contaminated sediments is lower than the threshold value of  $10^{-4}$ , in fact it is at  $10^{-5}$  which is within EPA's cancer risk range; albeit borderline. The commentor correctly stated that a second tier ecological assessment must be completed; however, neither of these findings lead to the hard conclusion that removal of arsenic-contaminated sediment is inevitable. Continued monitoring and further ecological assessment are required before any removal can occur.

With regard to removing the source, the air-sparging trench technology was selected to do just that. The location of the air-sparging trench at the edge of the waste area will address the contamination close to the source. One reason for this is to minimize the length of travel a contaminant must traverse before being captured or destroyed. In addition, in accordance with wetland ARARs, impacts to surrounding wetlands must be as minimal as possible. The area along Tolend Road is identified on map 8-1 of Appendix A of the RFFS as being a "Palustrine Forested Wetland." Moving the air-sparging trench further away, towards Tolend Road, is at odds with wetlands regulations that favor remedies with the least adverse impacts on wetlands and allows contaminants to migrate further through the aquifer.

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**Comment 50: Sediments have been accumulating in the river and washing downstream. Is there any plan to identify downstream sediment collection areas and sample them now and in the future? What will be the ultimate concentrations we can expect in sediments in the Cocheco River? What will be the ultimate fate of the arsenic-contaminated sediments?**

**EPA's Response:** The sediments generated by the site are minuscule when compared to the overall load of sediments in the Cocheco River. The ultimate concentrations of sediments downstream will be close to, or at, the natural, regional background values for arsenic. For instance, consider sampling transect T6 which is less than 400 feet downstream of where arsenic discharges to the stream and is entrained into the sediment. There were three sampling points at T6, the far (north) bank, the middle of the channel, and the near bank (closest to the site). The concentrations were, 3.3 ppm (parts per million), 7.3 ppm, and 5.1 ppm for the far, middle and near banks respectively. This compares well with the T1 transect which is upstream of the site and unaffected by the site. The concentration of arsenic in sediments at T1 are 5.6 ppm, 4.8 ppm and 4.6 ppm, for the far, middle and near channel respectively. The natural sediment load of the river is far greater than what is contributed by the site.

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**Indoor Air Contamination**

**Comment 51: The Agencies admit the impacts to indoor air are unknown and “The potential impact to indoor air pollution from the volatile organic compounds has not been assessed.”**

**EPA’s Response:** Indoor air impacts have been assessed under State protocols for evaluating indoor air in the absence of a federal protocol. That evaluation found no unacceptable concentrations of indoor air vapors due to site contaminants. EPA found no fault with this protocol; however, has recently developed its own protocol and will assess indoor air under that strategy during pre-design activities.

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**Nuisance**

**Comment 52: The proposed remedy does not collect and treat gases recovered during air-sparging. This poses the potential for odor problems.**

**EPA’s Response:** This is a valid concern. As part of the pre-design, EPA will evaluate collecting and treating gases recovered during air-sparging.

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**Comment 53: Noise from the pumps doing air-sparging and other operations may pose a nuisance to surrounding residences.**

**EPA’s Response:** EPA will endeavor to ensure that remedial pumping stations are sited away from residences and that excess sound is muffled to the best extent possible.

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**SUMMARY OF POTENTIALLY RESPONSIBLE PARTY COMMENTS**

**Implementability**

**Comment 54: The layout of the air-sparging trench, as depicted by EPA, is flawed in that it does not account for distinct properties in the aquifer underlying the landfill and the differing hydraulic properties of the aquifer. The layout of the trench should be subject to the findings of pre-design studies and flexible to site conditions. For instance, one option that may have several advantages would be to re-position the air-sparging trench treating the Eastern Plume to a line along Tolend Road. The layout of the air-sparging wall should be designed with all site conditions considered.**

**EPA’s Response:** The position of the air-sparging trench shown on the figures in the RFFS and Addendum are schematic in nature and do not represent even the approximate final design. The

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final design will be based on site conditions, the analysis of EPA and State experts, and in consideration of applicable laws and regulations. CERCLA typically requires compliance boundaries to be set at the edge of waste management areas, here the landfill. At Dover, because the goal is clean closure and complete aquifer restoration even beneath the landfill, a compliance boundary does not exist; however, it is EPA's policy to control contamination as close to the source as possible. See the response to comment No. 49.

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**Contingent Remedy**

**Comment 55:** Although a contingent remedy is necessary with respect to the operation of the air-sparging trench, the need to cap the landfill with a RCRA type "C" cap in the event of a failure of the trench is not apparent. Consider, as a contingency in the event of the failure of the sparging trench, simply converting the trench into a leachate recovery device.

**EPA's Response:** The capping contingency was presented in the Proposed Plan and fully vetted by the public; to reformulate the contingent remedy would require issuing another decision document by the Agency. EPA received considerable public comment concerning the long delay in implementing a remedy at this Site and is not inclined at this time to entertain any further changes to the remedy.

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**Comment 56:** Currently, the landfill surface is being examined by the City of Dover as an area for future disposal of dredge spoils, lightly contaminated soil or possibly municipal solid waste. This reuse would be consistent with the 1991 ROD in that it would serve as the fill to attain the necessary grades for the cap. The City of Dover would like to examine this concept during considerations of the ROD amendment.

**EPA's Response:** EPA believes that re-use of the landfill for additional landfill operations would be inconsistent with the ROD Amendment's goal of attaining clean closure and aquifer restoration within a reasonable amount of time. The Agency is always available to discuss possible future uses of the Site with any party.

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**Source Control at the Landfill**

**Comment 57:** In investigating localized source areas it is suggested that specific methods not be limited to those cited in the Addendum.

**EPA's Response:** EPA is receptive to proven methods that will efficiently and effectively identify and remediate the localized source areas. Proven methods, different than those suggested in EPA's Addendum, must be offered in a timely manner for evaluation and inclusion in the amended Consent Decree and Scope of Work (SOW) and to be detailed in Work Plans.

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**Ground Water Contamination****General**

**Comment 58:** Arsenic in ground water at the site is most likely natural arsenic released from the aquifer matrix by the conditions in the ground water and therefore may never attain ICLs. Additional study is required to determine the origin and behavior of arsenic in ground water surrounding the landfill.

**EPA's Response:** See response to Comment No. 16, 19, and 39. EPA recognizes that there are background levels of arsenic at the Site that have been determined to be at 10 ug/kg. It is also noted that there have been no investigations to determine the origin or behavior of arsenic at the site and while that information may be of interest, EPA is not convinced it is a necessary investigation for this remedial action. What is clear is that arsenic is a site related contaminant that poses a risk to human health and the environment and it must be addressed.

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**Comment 59:** EPA's Addendum that supports the Proposed Plan refers to dispersivity at the site being low. The Agencies have drawn conclusions from this assumption regarding the geometry and behavior of ground water contaminant plumes at the site. Specifically, this has led to the paradigm that plumes in this area are narrow and highly concentrated. The EPA's justification for low dispersivity values was not provided in the Addendum or in any previous correspondence. It is recommended that further evaluation of dispersion be included in further work at the site.

**EPA's Response:** EPA disagrees and notes that on July 13, 2001 in Portsmouth, New Hampshire, NHDES provided a spreadsheet to the Group and its consultants demonstrating that dispersivity at the site may be quite low. An additional copy of that spreadsheet is available. In addition, there were several conversations during the monthly meetings regarding "hockey puck" plumes of contamination. The concept of a narrow contaminant plume was the basis of the April 23, 2002 NHDES letter that advanced the necessity of a treatment trench rather than discreet injection points to address such plumes. Since that time, the Group has not demonstrated that this concept was invalid. EPA is always willing to evaluate further evidence; however, further investigations on this issue will not be entertained if they result in delays to implementation of the remedial action.

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**Southern Plume**

**Comment 60:** The information that EPA based its decision on to not consider MNA (MM-2) in the Southern Plume was flawed from two standpoints. First, EPA considered wells that were not in the Southern Plume. Considering the data in Table 1 of Appendix B of the Addendum, as revised, "...underscores the need for additional information regarding



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**conditions in the Southern Plume....” Second, EPA does not fully understand the potential anaerobic degradation pathways for vinyl chloride, benzene and tetrahydrofuran. The scientific literature contains several instances of anaerobic biodegradation; however, the rates at the site need to be investigated.**

**EPA’s Response:** EPA based its decision not to consider a MNA remedy on the lack of solid, site-specific, scientific support that natural processes are functioning effectively in the Southern Plume to reduce all contaminants to concentrations protective of human health and the environment. Due to the lack of field data, and the scarcity of monitoring points, EPA elected to retain the remedy selected in 1991. EPA fully understands contaminant degradation pathways; however, the Group has failed to demonstrate their effectiveness at this site in attaining cleanup levels.

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**Comment 61: EPA should retain the flexibility to utilize MNA in the Southern Plume with pump-and-treat as a contingent remedy. If pre-design investigations indicate that pump-and-treat is required, EPA should retain flexibility in how any remedy is employed. One consideration is that any water extracted and treated from the Southern Plume be combined with the ground water extracted in the southwest corner of the landfill and piped to the City of Dover publicly owned treatment works.**

**EPA’s Response:** As previously stated, EPA has fully vetted the alternatives publicly and has selected the current remedy. Any significant change would require a further decision document. While EPA will remain flexible in considering all options contained in the 1991 ROD with respect to how the contaminated ground water from the Southern Plume is treated and discharged, EPA will not allow any further investigations to delay the implementation of either the Source Control or Management of Migration components at the Site. The Group has had the opportunity to demonstrate MNA in the Southern Plume using field data. Since the 1991 ROD, EPA and NHDES have allowed the Group great latitude in investigating alternative cleanup technologies. Since the 1997 AOC, EPA and NHDES have had nationally recognized experts in MNA available to evaluate any such data that the Group might present, however no formal investigation has been offered in the past seven years.

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**Comment 62: EPA did not apply a correct understanding of the ground water modeling to the Southern Plume. The end result was the Agencies predicted an impact on the Bellamy Reservoir that is not consistent with the results of the model. Using the model and literature degradation rates, there were no simulated impacts on the Bellamy Reservoir from either vinyl chloride, benzene, *cis*-1,2 dichloroethylene, or tetrahydrofuran during the 100-year modeled time-frame. Therefore, impacts to the reservoir are unlikely.**

**EPA’s Response:** EPA based its decision to retain the 1991 Management of Migration component for the Southern Plume on contaminant data trends observed in ground water.

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Models provide good estimates of probability; however this modeling with its use of literature values and inherent assumptions, did not convince EPA that MNA was a more effective remedy than pump-and-treat. Despite more than ten years of field work at the site, no field evidence demonstrated that MNA in the Southern Plume would be an effective remedy.

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**Sediment Contamination**

**Comment 63: Sediment monitoring need not be included in the Environmental Monitoring Plan as an annual event over the duration of the remedy. Further assessment of sediment in the Cocheco is required under the tiered ecological assessment. The second tier of testing should be followed, if warranted by field data, in conjunction with the five-year reviews of remedy performance.**

**EPA's Response:** Environmental monitoring is currently performed semi-annually to ensure that the remedy is protective of human health and the environment. Based on the results of current and future risk analysis and the length of time that no action has been taken to control contaminants, EPA anticipates updating the Environmental Monitoring Plan (EMP). The 2002 sediment sampling results demonstrated that although sediment concentrations did not exceed human health standards, there were concentrations above EPA's point of departure in considering risk. Therefore, a reassessment of the risks to human health posed by elevated arsenic in sediment, possibly in conjunction with exposure to other contaminants of concern, will be performed during pre-design activities and will become a part of the EMP. Ground water, surface water, and sediments will be sampled under the new EMP at least annually for the first five years after the Amended ROD is issued. After five years, it may be appropriate to lessen the frequency of sampling. For ecological risks, the second tier testing will be performed during pre-design studies as well and will move to a third tier assessment if necessary. Sediment testing for ecological risks shall also occur annually for the five years at which time the frequency can be reevaluated. Accordingly, the EMP will be modified to ensure protectiveness.

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**Soil and Sediment Disposal**

**Comment 64: Soil and sediment excavated from the landfill during the construction of the amended remedy, SC-A & MM-2/4 should be managed according to the provisions of the NHDES Risk Characterization and Management Policy and the contaminated soil reuse provisions of the State's Solid Waste Rules (Env-Wm 2603.05). The Proposed Plan indicates that the more than 19,000 cubic yards of soil excavated from the trench will be disposed off-site. Following the Solid Waste Rules reuse of contaminated soil and allowing disposal on-site, consistent with those rules, will diminish short-term risks and lower costs.**

**EPA's Response:** Given the landfill is not currently active, nor does it exist under the State's Rules, applicability of the RCMP and Env-Wm 2603.05 may prove problematic. Pre-design



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investigations will make a final determination on this issue. If determined applicable, a goal of the pre-design investigation will be to evaluate representative soil samples from the proposed alignment cross-section and assess the results under the State's Solid Waste Rules and RCMP criteria.

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**Responsiveness Summary: Dover Municipal Landfill Amended Record of Decision**

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**ATTACHMENT 1**

Appendix D: Responsiveness Summary

**Transcript of the July 19, 2004 Public Hearing**

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UNITED STATES OF AMERICA  
ENVIRONMENTAL PROTECTION AGENCY  
BOSTON REGION

In the Matter of: .

PUBLIC HEARING:

RE: AMENDED PROPOSED PLAN  
DOVER MUNICIPAL LANDFILL SUPERFUND SITE  
DOVER, NEW HAMPSHIRE

Dover City Hall Auditorium  
228 Central Avenue  
Dover, New Hampshire

Monday  
July 19, 2004

The above entitled matter came on for hearing,  
pursuant to Notice at 7:00 p.m.

BEFORE:

MIKE JASINSKI, Chief, NH/RI Superfund Section  
DARRYL LUCE, Remedial Project Manager  
U.S. Environmental Protection Agency  
Region 1, New England  
Office of Site Remediation & Restoration  
One Congress St., Suite 1100  
Boston, MA 02114-2023

ANDREA HOFFMAN, Project Manager  
New Hampshire Department of Environmental Services

~~ORIGINAL~~

Copy

APEX Reporting  
(617) 426-3077

I N D E X

SPEAKERS:

PAGE

Brian Stern for Loretta B. Chase

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Tom Fargo

4

Doug Bogen

8

Katie Duncan

13

Brian Stern

14

Mike Hodgins

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P R O C E E D I N G S

(7:00 p.m.)

MR. JASINSKI: I have some white cards here. I am going to start the public comments now. I'm going to go through these one by one, and then we'll, if someone wants to come up later, please, raise your hand, and I'll call your name, and we can go from there.

Again, please, state your name and your relationship to the Dover Landfill Superfund Site. The first card I have is from a Loretta Chase, if she could come up and --

MR. STERN: Ms. Chase is not able to come up to the stage. She's, it's very short, and she asked me to present it.

MR. JASINSKI: If you could, Brian, if you could for her--

MR. STERN: Okay--

MR. JASINSKI: --state your name and who you're speaking for and then the comment.

MR. STERN: Okay. My name is Brian Stern, and I'm speaking for Loretta B. Chase, and she wrote these comments: "Brian Stern has my permission to present these comments. They are my personal comments. I am particularly concerned with the Eastern Plume and its effect on the Cocheco River.

"Until a biological assessment is completed,

1 appropriate decision for a remedy cannot be made. The  
2 health of the river is important, and the New Hampshire  
3 Department of Environmental Services has laws to protect it.  
4 DES should be given full support. Major efforts to improve  
5 the river upstream and downstream in the Cocheco are  
6 underway. This is another way to add to that effort."

7 Those are the comments, and she asks a question:  
8 "How well is sparging understood?"

9 So, she had written those. I'd like to submit  
10 those written comments.

11 MR. JASINSKI: Thank you, Brian.

12 The next card I have is from a Tom Fargo, a Dover  
13 resident. Mr. Fargo?

14 MR. FARGO: Good evening. My name is Tom Fargo.  
15 I'm a Dover resident. I'm also Chairman of the Conversation  
16 Commission, and back in the early nineties, I was associated  
17 professionally with the predesign investigation at the Dover  
18 Municipal Landfill, so I'm quite familiar with the issues  
19 out there regarding source control and management of  
20 migration.

21 I've gone to the presentation. I've read through  
22 the, the last presentation. I've read through the proposed  
23 revised remedy, and I'm very concerned about the ability of  
24 the air-sparging trench to work over a period of time.

25 I'm concerned that there'd be a significant amount

1 of precipitation of iron and arsenic co-precipitate in there  
2 that would actually cause clogging in the interstices of the  
3 backfill material causing it to not operate over the period  
4 of time that it's desired to operate.

5 I'm concerned because once these precipitates  
6 form, the only way that I see to really get them out is  
7 either to use some sort of acid, which would remobilize,  
8 potentially remobilize, these materials, or excavate them  
9 out, which could have serious cost implications associated  
10 with it.

11 I'm also -- Darryl, can you go back to the red  
12 line that shows the air-sparging trench on the map? Okay.  
13 The air-sparging trench is shown on the map here. I'm quite  
14 familiar with the ground water flow patterns out there, and  
15 I recognize that the air-sparging system is primarily geared  
16 toward controlling the contaminants as opposed to  
17 controlling the hydrology or the hydraulics of the site. In  
18 other words, if you stop all the contaminants at the waste  
19 boundary, then you don't have to worry about where the water  
20 flows past that boundary area.

21 I'm familiar with the hydraulic controls which  
22 were proposed previously. In fact, I did a lot of the  
23 design work associated with the ground water extraction  
24 system, and I know that the downgrading area is here, and  
25 here are the primary sources for contaminants --

1           The hydraulic control remedy was primarily to  
2 control in this area here and, also, in this area here.  
3 This leg of the trench is actually along the hydraulic  
4 gradient. The ground water flow path goes in this  
5 direction.

6           What I'm concerned about primarily is that there  
7 is a difference in the hydraulics along this section of the  
8 trench versus this section of this trench. In this area  
9 here, hydraulic gradients are upward, in other words, from  
10 the lower units in the upper interbedded and upper sand  
11 units, from the lower -- from interbedded sand layers here  
12 upward in the upward sands, and in this area, the hydraulic  
13 gradients are downward.

14           What I'm concerned about is that there'd be short  
15 circuiting here because of the issues, in terms of the  
16 hydraulics anyway, because these trench segments, if they're  
17 all connected, would allow flow to go in places where it  
18 wouldn't necessarily want, where you wouldn't necessarily  
19 want to have it there.

20           So I suggest that, if the air-sparging is going to  
21 take place, that these are segmented in a way that there  
22 can't be short circuiting from one place to another.

23           I'm also concerned about air-sparging from more  
24 planning related issues. You say that you'd only be  
25 collecting up the air that's coming up through the trench if



1 it has concerns, if you have concerns regarding the VOC  
2 levels in it. I know, from personal experience, that the  
3 leachate out here has an awful odor to it and that the  
4 neighbors are not going to be happy if this odor is  
5 emanating from your air-sparging system here. In fact, many  
6 neighbors are very concerned about odors associated with an  
7 operating landfill not too far away from here, and this  
8 would be a double whammy for them that I don't think they'd  
9 really appreciate.

10 The other aspect of this is I'm not sure how loud  
11 these blowers are going to be or how loud the system is  
12 going to be because it's operating, you know, you're blowing  
13 air, and you have these things, and I'm not sure whether the  
14 noise factor will be taken into consideration as well.

15 I'd like to repeat a comment I made back at the  
16 last meeting, and that is that if these Eastern Plume is  
17 going to have associated with it some of the excavation in  
18 the Cocheco River area to address some of the remnant  
19 arsenic contamination that might be there, that this be done  
20 through the normal DES permit process which would allow the  
21 Conservation Commission to have input on how to manage the  
22 excavation process that would be taking place to address  
23 those contaminants over there.

24 I think that the local watershed community,  
25 watershed protection community, would like to make sure that

1 any work that's done within the river is done in a way that  
2 addresses mobilization of the materials and restoration of  
3 the areas that are being addressed.

4 Thank you.

5 MR. JASINSKI: Thanks, Tom.

6 The next person I have is Doug Bogen. I hope I  
7 said that right. Clean Water Action, Portsmouth.

8 MR. BOGEN: Right. My name is Doug Bogen. I'm  
9 the New Hampshire Program Director for Clean Water Action,  
10 which is a national organization with regional offices in  
11 Portsmouth, and I'm also a Portsmouth resident, and we have  
12 over 3,000 members in the state.

13 I'm speaking in their behalf, and we have, in  
14 fact, almost 1,000 members that are in the communities that  
15 are potentially affected by this situation with the Dover  
16 Landfill, the potential for contamination to the water  
17 supply in the Bellamy Reservoir, so I really want to speak  
18 for those people, and I want to provide a little bit of  
19 background to this issue beyond what has been presented in  
20 the last couple of meetings.

21 You know, from the perspective of Portsmouth,  
22 we're really surrounded by a number of Superfund sites. To  
23 the west of us, we have the Coakley Landfill, which is  
24 fairly similar situation. It was the City Municipal  
25 Landfill, became a Superfund Site around the same time. It

1 is further along in the cleanup. They are putting a cap on  
2 it. It has been consolidated, but it did also threaten the  
3 Portsmouth water supply. We have a number of wells that are  
4 down gradient of it in Greenland.

5 To the east of us, there's the Portsmouth Naval  
6 Shipyard, which is also a Superfund Site, although we are  
7 divided by the Piscataqua River, but, again, another major  
8 toxic waste site in the area, and then just immediately to  
9 the north of us is the Pease Air Base Superfund Site, which  
10 is actually a couple dozen different sites, and I wanted to  
11 focus on that one a little bit more because there was a  
12 public health assessment done for that site a number of  
13 years back, back in 1999, in fact, and I provided some  
14 comments to that assessment.

15 They did determine that there was an increase in  
16 elevation of two types of cancer. The one relevant to this  
17 situation here is non-Hodgkins lymphoma, which is associated  
18 with exposure to volatile organic chemicals like  
19 trichloroethylene or TCE, which is also found at the Dover  
20 Landfill site.

21 Pease Air Base did contaminate their water supply,  
22 which is also a portion of the City of Portsmouth's water  
23 supply, back in the 1970s. This assessment did determine  
24 that even though there was a two and a half times more  
25 non-Hodgkins lymphomas in the local population, that that

1 they could study, it did not constitute an increased risk.  
2 They didn't think it was statistically significant.  
3 Interestingly, they didn't actually sample or look for data  
4 from the people that lived on the base that were drinking  
5 most of the water.

6 But I probably mention all this because of the  
7 fact that we're talking about Portsmouth's water supply  
8 here, and we don't want to have, 20 years from now, to be  
9 doing an assessment of what happened, you know, due to  
10 another insult to our water supply.

11 We also already have arsenic in our water supply.  
12 It is naturally found in New Hampshire. I'm sure most  
13 people don't realize that, at one point before, I guess, New  
14 Hampshire was called the Granite State, it was actually  
15 called the Arsenic State. They used to mine arsenic. You  
16 know, it's good rat poison. And we do naturally have  
17 arsenic in our water supply.

18 I believe up to, last report I saw was somewhere  
19 in the order of four parts per billion, the higher levels  
20 that have been measured in Portsmouth's tap water. We don't  
21 need any more. The fact is, there's really no safe level of  
22 arsenic. Folks should know that the current standard, the  
23 one going into effect in 2006, was a compromise, ten parts  
24 per billion, does not correspond to what EPA normally takes  
25 as an acceptable risk to public health for cancer effects.

1           There are other effects from arsenic as well that  
2   are still becoming understood, so this is a serious issue,  
3   and we really don't want to see any more arsenic going into  
4   our water supply.

5           In this regard, with folks in Portsmouth, I think  
6   it is of concern that I don't think people in Portsmouth are  
7   as aware of this issue as perhaps folks in Dover, and I  
8   realize we're kind of late in the process here, but I would  
9   like to ask, at least, that you consider holding a separate  
10   hearing in Portsmouth, given that the City of Portsmouth and  
11   surrounding communities are potentially affected with their  
12   water supply, that it's not just Dover residents that need  
13   to be concerned, and there ought to be a greater opportunity  
14   for Portsmouth residents to be informed and comment on this.

15           I do appreciate that you've extended the time  
16   frame for comments on this a few more weeks, but given that  
17   we are still in mid summer, I think it is pretty tough for a  
18   lot of folks to focus on if they even happen to be in town  
19   this month.

20           I do want to mention a few specific concerns over  
21   the proposed plan. The Clean Water Action, we're all for  
22   innovation, new technologies, but there are, as has been  
23   said before, there are many uncertainties with this sparging  
24   technology. It needs to be watched very carefully. It  
25   really, you know, opens a lot of questions as to whether

1 this will serve as a substitute for doing the, you know, the  
2 old remedy, the cap, and we are really concerned about that  
3 issue of trying to supplant that previous plan.

4 The issue of building a cap or not is of most  
5 concern to us. It's not clear whether the site will ever  
6 really be clean. We understand it's certain a benefit to  
7 try to reduce the contaminants in the ground water, reduce  
8 the contaminants in the soil as much as possible, but it  
9 still needs to be recognized that we're unlikely to get all  
10 of the pollution out of there, and I think you say in your  
11 proposal that you will need to have some sort of cap. I  
12 recognize it probably won't be the full RCRA cap, but still,  
13 you're going to have to do something with the site when you  
14 get down with the ground water treatment.

15 This plan appears to put cost concerns above human  
16 health and environmental concerns, and that concerns us.  
17 Really, human health concerns have to be foremost, and we  
18 recognize that, you know, City of Dover is very concerned  
19 about what it will eventually cost them and the other  
20 parties, but we really need to be considering the number of  
21 people that are potentially at risk here. We need to be  
22 taking their concerns foremost.

23 We shouldn't give people really a false sense of  
24 confidence that they can avoid, in the case of the City of  
25 Dover, that they can avoid these costs. It may just turn

1 out that ten years from now, we'll have to spend more. I  
2 mean, I notice back in 1990, it was, I think, \$24,000,000,  
3 or something in that order, for the cap, and now it's  
4 \$32,000,000. I wonder, in 2010, if it's going to be  
5 \$40,000,000 or \$50,000,000 for the cap, which may eventually  
6 need to be done anyway, so we shouldn't just assume that  
7 we're going to avoid that cost.

8 Lastly, I'd just like to mention the Cocheco River  
9 contamination appears to be problematic. It's a great  
10 concern. There's these questions raised about how much we  
11 know about it and what needs to be done about it, and it  
12 hasn't really been fully investigated, and that, even though  
13 it isn't, you know, somebody's drinking water supply, it's  
14 certainly environmentally, in terms of recreational  
15 exposure, it's a great concern that we are seeing arsenic  
16 ending up in the river there, and it does appear that that  
17 needs to warrant further attention.

18 I will be submitting written comments before the  
19 deadline, but I appreciate your time tonight. Thank you.

20 MR. JASINSKI: Thank you, Doug.

21 Next comment, I have Katie Duncan.

22 MS. DUNCAN: I am Katie Duncan. I live in Dover.  
23 I'm a student from Woodman Park School. Here's my question.  
24 At the last meeting, I asked the question: When will it be  
25 safe to swim in the river?

1           It seems you did not know, and I don't feel that  
2   you have given me a clear answer. I would like to know the  
3   answer to my question.

4           MR. JASINSKI: Thank you, Katie. You'll have to  
5   wait for that answer. Sorry.

6           Next one I have, last white card I do have this  
7   evening is from Brian Stern, personally.

8           MR. STERN: Thank you. My name is Brian Stern.  
9   I'm from Dover. I am also an incorporator of a group called  
10   the New Hampshire Tag Force, a nonprofit organization that  
11   has been incorporated to obtain a tag grant from the EPA,  
12   and we have obtained that grant. We've not yet done our  
13   study so that my comments, personally, do not reflect the  
14   comments of the New Hampshire Tag force. We will be  
15   separately providing written comments before the comment  
16   period.

17           I'd like to thank the EPA for extending the  
18   comment period, and I'd like to thank them for the tag  
19   grant. It's a great program that allows citizens the  
20   resources to be able to hire experts to be able to provide  
21   thought out comments, which they otherwise could not do. It  
22   recognizes that citizens just do not have the wherewithal to  
23   address these complicated issues.

24           I have a lot of issues to address, and I think I  
25   want to somewhat do it backwards and address the cost issue



1 first. I almost feel as if I'm in a position of saving the  
2 PRPs from themselves, and I think that the State and the EPA  
3 should not also be feeling a need to satisfy the PRP's  
4 request for a less cost technology when there are so many  
5 questions about it and then to cover it, put in a  
6 contingency backup plan that states, in the event of  
7 failure, the contingency plan will kick in. It will be a  
8 very expensive experiment, one that the citizens of Dover,  
9 who is the primary PRP, could not afford.

10 So I think that the low cost, the lower cost plan  
11 that's being proposed is not necessarily the lowest cost  
12 plan, and cost is a factor that the EPA and the State  
13 considers in choosing a technology so I think I have a  
14 concern for the cost of this plan because that cost includes  
15 the contingency.

16 I also have a concern that the contingency will  
17 create an enormous amount of delay and additional cost over  
18 litigation and determinations of when that contingency kicks  
19 in and what is the wording to trigger those contingencies.  
20 There is wording in the documents such as "if it fails," and  
21 how is that determined or "if there is a risk," and how is  
22 that determined or "if it does not meet the safety standard  
23 that are required," is one of the, I've seen those sort of  
24 words at some point.

25 I'm uncomfortable if the air-sparging trench works

1 to an extent where it brings it down below the threshold  
2 level of risk, but it still allows for contaminants to the  
3 environment, whether it be the Bellamy River, the air or the  
4 Cocheco River.

5           So your trigger point for that contingency is, I  
6 don't think, very well thought out, and it certainly is not  
7 air tight, and it's going to be subject to a lengthy process  
8 to determine when that contingency will kick in. It will  
9 cause additional delay, a lot of expense to the  
10 participating parties and the government in determining when  
11 that contingency kicks in, and I think that it's set for  
12 failure of that contingency is, if it's still above  
13 acceptable levels, and it just reduces them below those  
14 levels, but is still not a risk that we would want to  
15 accept.

16           I echo Doug Bogen's and the Clean Water Action's  
17 comments that ten parts per billion of arsenic is a  
18 compromise today that may not be the compromise later. I  
19 don't recognize that as an acceptable level for arsenic,  
20 particularly, with the high background level which that  
21 national standard does not recognize and is not  
22 individualized to New Hampshire so I'm concerned about that.

23           I have concern about the list of additional  
24 studies to be completed, and there is a large list of those.  
25 The plan and the addendum recognize a whole host of unknowns

1 about this site, and I have concern that the remedy is being  
2 picked without adequate knowledge of that site.

3 We can look in hindsight and point blame, but,  
4 certainly, it is a shame that, after so much time, we have  
5 inadequate information about the site, but that inadequate  
6 information goes to that there has not been an assessment of  
7 the risk to human health from multiple pathways of exposure,  
8 whether it's individually or combined. That risk to human  
9 health has not yet been assessed from this site, and we're  
10 choosing a remedy.

11 The risk to the environment has not been assessed.  
12 The government and the PRPs do not even know what the level  
13 of contaminants are that's heading to the Bellamy Reservoir  
14 or to the Cocheco River, and these are, this is the  
15 government's own words, in their own document: "The  
16 potential impact to indoor air pollution from the volatile  
17 organic compounds has not been assessed." That's, again, by  
18 the government's own admission.

19 The nature and the source of the contamination has  
20 not been studied. There's a question whether the arsenic is  
21 native or whether it's been a contamination to the site, and  
22 that has not been studied. That's also with some other  
23 contaminants, and I've not seen the documents, but I'm not  
24 very comfortable yet with the way it's been addressed for  
25 lead and mercury and cadmium and whatever other metals are

1 there.

2           There is criticism in the addendum that there is  
3 only one well, I believe, between the site boundary and the  
4 Bellamy Reservoir, and there's 800 feet between that well  
5 and the Bellamy, which has not been tested for the  
6 contamination of the Bellamy Reservoir.

7           The documents say that the government does not  
8 know the extent of the Southern Plume and what it will take  
9 to intercept it; yet, we're proposing a plan, and the plan  
10 has all these predesign studies to be done.

11           The Cocheco River has many locations of testing  
12 that are exceeding the first tier of criteria; yet, they  
13 have not, the government has not proceeded to study those,  
14 the next level of criteria. Yet, the plan says we'll just  
15 monitor and naturally attenuate at the same time that these  
16 studies already show that the contamination is there.

17           There are more issues in terms of the studies that  
18 still need to be done, which is recognizing the document  
19 before a plan is done, so I have a concern with that.

20           Oh, let me, let me add a couple more in terms of  
21 the studies that have been done. There's no study as to  
22 what the level of arsenic will achieve in the sediments.  
23 There's been no study of that. There's been no study of how  
24 the sediment in the Cocheco River watershed have been  
25 dispersed, how level the, how far widely dispersed the

1 contaminants have been.

2 I was thinking about this since the last meeting,  
3 that the comment is that the level of arsenic at the  
4 boundary, near the boundary of the landfill where it leaches  
5 into the river are at low levels. Well, so we don't have to  
6 address them. They're going to constantly be at low levels  
7 and, by that logic, will never be addressed. The  
8 contaminants come in, in a slow drip and wash away, and they  
9 constantly stay at a low level.

10 I was thinking about that. Where are they going  
11 to go? Where are they going? There is a question to what  
12 extent they'll be suspended in the water even on a temporary  
13 basis, what amount is going to wash over the dam and go  
14 downstream into the Piscataqua watershed, but, most  
15 certainly, they'll be accumulating behind the dam, the first  
16 dam, at Watson Road, and there's been no study of the  
17 sediments at the Watson Road.

18 There's a ready made study to see what has been  
19 accumulated. I'm not sure how much it's going to tell us  
20 because we don't even know at this point how long the  
21 sediments have been leaching into the Cocheco River or at  
22 what rate, nor do we know at this point the volume of  
23 contaminants between the boundary of the landfill and the  
24 river.

25 How much has moved off site that still is in that

1 area, and how long that will take for a constant low-level  
2 washing into the river? And where will they go? How will  
3 they be distributed? How will they accumulate? And what  
4 will happen in a 100 year flood to those contaminants that  
5 accumulate in high level behind the dam, if that is where  
6 they go, in fact?

7 MR. JASINSKI: If you would summarize your  
8 concerns right now, I'd appreciate it.

9 MR. STERN: Well, I have quite a number--

10 MR. JASINSKI: Maybe we can give somebody else--

11 MR. STERN: --of points that I would not be able  
12 to summarize those points. That's the end of the list of  
13 the studies. I'd like to move on to some other areas that I  
14 have.

15 MR. JASINSKI: If you could, quickly.

16 MR. STERN: I'll try to move through each of them.

17 MR. JASINSKI: Yes.

18 MR. STERN: It was decided for the Southern Plume  
19 going to the Bellamy that monitored natural attenuation  
20 would not work, that the conditions for monitored natural  
21 attenuation don't exist at the site, so I am concerned that  
22 how that remedy then works for the Eastern Plume. When it's  
23 been determined that it does not work and the conditions are  
24 not right for monitoring natural attenuation for the Bellamy  
25 area, why does it work for the Cocheco?

1 I have a concern that the PRPs have raised and  
2 will raise a challenge to this remedy that there isn't  
3 practicability to achieve it, that there is natural arsenic  
4 and that they cannot clean it up because it will just be a  
5 continual flow of arsenic. As much as there's water getting  
6 in because there's no cap, there will forever be arsenic.

7 If that argument is the case, and that is  
8 potentially the case, and that's recognized in the EPA  
9 documents that the source of the arsenic may be natural, it  
10 may be added, it may be the combination of them, if that's  
11 the case, and there is some practicability potentially  
12 recognized by the government that the, this plan doesn't  
13 work because it needs to be capped, if that argument of  
14 practicability is a concern.

15 I understand there's going to be some  
16 experimentation with this sparge wall in terms of it being  
17 built in sections and seeing how it works, and I'm concerned  
18 about the time frame that that is going to take. I have  
19 concern about whether the sparge trench will work at all. I  
20 don't understand the system to have been so widely used as  
21 has been represented. I have concern about that. I also  
22 have concern that it is novel in addressing, both, arsenic  
23 and tetrahydrofuran, and it is novel in that regard, as  
24 well as the removal of the arsenic. That's an issue.

25 I think the recapturing of the precipitate is

1 going to be a problematic issue that, even if the acid wash  
2 to remobilize the precipitate works, in general, I believe  
3 you're going to have a very high concentration of arsenic,  
4 and not all of that remobilized precipitate will be  
5 captured, and you'll be sending high concentration shots  
6 downstream.

7           So even if it pretty much well works, I think  
8 you're going to have very highly concentrated arsenic in the  
9 precipitate that, in the removal process, if the removal  
10 process works as expected, is still not going to be perfect,  
11 and that will create a problem, but I also have a concern  
12 that, to remobilize and remove it, itself, is going to be a  
13 problem.

14           I have a concern with the clogging, as Tom Fargo  
15 mentioned. I also have problems or concerns with channeling  
16 of air and channeling of water and how those are going to be  
17 monitored to see that they are working.

18           I also have a concern about the long-term  
19 operation of the sparging trench, and I have concerns that  
20 it is referenced in the plan as a, both, 20 year and a  
21 30 year operation; yet, the addendum states that it will  
22 take 75 to 100 years, depending on the Cocheco River and the  
23 Bellamy, 75 to 100 years of cleanup before the contaminant  
24 is addressed.

25           So I'm concerned between the conflict in the



1 documents between 20 or 30 versus 75 or 100, and I am  
2 concerned with the socioeconomic time frame as to what is  
3 going to be a socioeconomic environment, whether it's  
4 30 years or 100 years from now. Are we going to be asking  
5 some body or some entity or something to continue the  
6 operation of this for such a long period of time?

7 It's too far out to say that we'll be able to  
8 continue to do this at that time frame. Who knows what the  
9 social, political and economic environment is going to be  
10 that far out for this type of technology? It should be  
11 addressed at this point.

12 MR. JASINSKI: Brian--

13 MR. STERN: Yes--

14 MR. JASINSKI: --let me stop you right there.

15 Hold on.

16 Is there anybody else who wants to make a  
17 statement? Because I'll, I want to defer to others, too.

18 You can come back.

19 MR. STERN: Thank you. I appreciate that.

20 MR. JASINSKI: But does anybody else want to make

21 --

22 No, Brian, if you've got more to say, that's fine.

23 But does anyone else want to make a statement?

24 Because I want to give everybody an opportunity to night.

25 So, sir?

1 And then, Brian, you can come back.

2 MR.. HODGENS: I'll be very brief.

3 MR. JASINSKI: I'm just going to give everybody  
4 else a chance.

5 MR. HODGENS: My name is Mike Hodgins, and I'm a  
6 Portsmouth resident, but I'm a commercial diver, and I've  
7 dived in these waters for like the last 15 years, and my  
8 season's from April, mid April, until mid November, and I'm  
9 in the water pretty much every day, and my concerns are, you  
10 know, what's leaching out there? What am I swimming in?  
11 And how is it affecting me and people in the business that  
12 I'm in?

13 And my concern, my other concerns, are the  
14 drinking water in Portsmouth, and it just seems like it's  
15 very risky to take these steps not knowing how the results  
16 are going to be when you have another method of capping that  
17 could, you know, makes more sense to me than these  
18 suggestions.

19 MR. JASINSKI: Thank you very much.

20 Anybody else before Brian continues?

21 (No response.)

22 MR. JASINSKI: Brian?

23 MR. STERN: Thank you. I'm sorry. I didn't know  
24 you wanted to just take a break.

25 MR. JASINSKI: No. I want to give everybody--

1 MR. STERN: Sure--

2 MR. JASINSKI: --an opportunity. That's all I'm  
3 trying to do.

4 MR. STERN: Sure. Yeah. I try not to--

5 MR. JASINSKI: I didn't want to hold somebody up.

6 MR. STERN: I try not to repeat myself and--

7 MR. JASINSKI: Okay--

8 MR. STERN: --and go through these, and thank you  
9 for the opportunity.

10 The trench, I believe, is estimated to have about  
11 20,000 cubic yards of material to be excavated, and I assume  
12 that much to replace it, and I don't know if all the  
13 excavated material would be trucked off site, but if it's  
14 the amount of excavation, the amount of replacement being  
15 40,000 yards, I believe the cap is 165,000 yards so that the  
16 order of magnitude between them may not be as much as is  
17 represented as a concern.

18 Certainly, there is more. There's a big  
19 difference between 40,000 and 165,000 yards, but it's not  
20 like 10,000 yards to 165,000 yards.

21 Darryl Luce, of the EPA, was kind enough to  
22 respond to me in writing to a question that I posed at the  
23 last meeting which was: How much would it cost to pump and  
24 treat the Eastern Plume to the Cocheco River?

25 And the EPA can characterize that, their response,

1 better than I can, but I believe the bottom line on it was  
2 2,000,000 to 3,500,000. If it's at the lower end, it's not  
3 that much more than the monitoring and natural attenuation,  
4 which is, if I remember right, close to \$2,000,000 in  
5 itself, so we're not talking about that much of a premium of  
6 cost to also pump and treat the Eastern Plume to the Cocheco  
7 River because it is recognized that there already will be in  
8 place the pumping technology for the Bellamy Reservoir, so  
9 there's only an incremental cost of adding additional  
10 pumping and treating, and there is a large cost to  
11 monitoring a natural attenuation. It's not a cheap,  
12 inexpensive item.

13 So I think that needs to be considered. I don't  
14 think it really has been considered by evidence that the EPA  
15 needed to do the look into that, and I do appreciate that  
16 they did look into those costs, but I think that is  
17 something to consider for this plan.

18 The last comment I'd like to make is about the  
19 Cocheco River, and I have said some of these, and this is  
20 one area where I may overlap on it, but I'd like to  
21 consolidate them in this area.

22 My concern is that there will be a constant low-  
23 level drip of contaminants into the river, and that's not  
24 acceptable. We're talking about a major watershed to this  
25 area, major contributory to the Great Bay. There are

1 enormous amounts of efforts being made regionally to clean  
2 up the Great Bay and the Piscataqua River basin.

3 The local communities have been hit really hard  
4 with the bills for sewage treatment plants, Dover,  
5 Rochester, Farmington, Somersworth. We're spending millions  
6 of dollars to dredge the Cocheco River in Downtown Dover.  
7 We're dealing with contaminants at the Portsmouth Naval  
8 Shipyard. We're looking to develop the waterfront. We're  
9 asking people to use it and model it and create an economic  
10 viability depending upon the river; yet, we'd overlook this  
11 aspect of it.

12 Loretta Chase's comments were appropriate that  
13 this is an opportunity to join in that effort, not to avoid  
14 it. It's inappropriate to be looking at a short term  
15 horizon for the cleanup of this river and use of this river  
16 and then allow constant low-level drip for the next 50 to  
17 100 years.

18 The river, I believe, is what's called TMDL  
19 listed, which says that the river's biologically challenged  
20 based on oxygen demand. This is oxygen challenged river,  
21 and when these contaminants come out from under the ground,  
22 they will demand all of the oxygen of that river and will  
23 further degrade it, and I believe that the listing of that  
24 river should not allow that to occur. I know that sounds  
25 very technical, but this is a large part. The health of the

1 river is dependent upon the oxygen in that river.

2 The greatest level, the greatest volume of  
3 contaminants and the steepest gradient go towards the  
4 Cocheco River. That's where they're heading. There is a  
5 smaller portion going to the Bellamy. I don't say that to  
6 ignore the Bellamy. They need to both be addressed, but it  
7 is recognized that that is where the greatest volume is,  
8 going to the Cocheco River. That should not be ignored.

9 I understand that the arsenic moves slower than  
10 the ground water, that it moves from grain to grain, and it  
11 takes many flushings of the ground water through the area to  
12 leach out the contaminants, so if it takes ten years to  
13 flush through, and we believe it takes longer than that, it  
14 takes ten flushings, that's 100 years, so we're easily  
15 looking at 100 years plus for this. Those studies have not  
16 been done about it except to the extent that we do know that  
17 the contaminants are there.

18 I would just like to close with a couple of  
19 quotes, and that is the concern for further sampling of the  
20 Cocheco River if it's determined that it generates a risk to  
21 either human health or the environment, the contingency plan  
22 will kick in.

23 You already know that arsenic is leaching into the  
24 river. You already know that, so why is there a contingency  
25 plan?

1 I just flipped to another page that says that the  
2 air-sparging trench should be built with design flexibility  
3 to enable portions of the trench to be operated either as an  
4 extraction trench or a reinjection trench or, as the design  
5 trench as it is, for the sparging.

6 I don't know that that can be done either. Can a  
7 sparging trench be built that's going to also act as an  
8 extraction trench? I don't see that. I haven't seen, I  
9 haven't read everything yet, but I haven't seen that  
10 addressed. I see it as an imposed requirement, but I don't  
11 hear the technological or haven't seen the technological  
12 feasibility of that being done yet.

13 I'm going to submit written comments so I'll leave  
14 it at that, and I really do thank you. Katie had written a  
15 letter to you, Mr. Luce, that we did not get to mail. It  
16 echoes some of her comments following the last meeting that  
17 she didn't feel she got such a good answer to when she could  
18 swim in the river, and I'd like to submit Katie's letter to  
19 you for the record.

20 MR. JASINSKI: Thanks.

21 MR. STERN: Thank you. She even drew you a  
22 picture. Thank you.

23 MR. JASINSKI: Okay. Before I close the hearing,  
24 I want to make sure there are no other individual or  
25 otherwise comments.

1 Sir, again?

2 UNKNOWN: Back for extra innings, I thought I  
3 might as well.

4 MR. JASINSKI: It's not a requirement.

5 UNKNOWN: Okay. Sorry. I've been listening to a  
6 lot of comments regarding the Eastern Plume and management  
7 of the migration over there, and one concept I'd like to  
8 bring up is, I know it's been battered around before, but if  
9 the concern is for the contaminants which have already left  
10 beyond the solid waste boundary here that are now sort of  
11 lurking in this area that an active remedial system could be  
12 in place, say, along the southern boundary of Tolend Road in  
13 this area here, sort of a cutoff, essentially, what I'm  
14 suggesting is, or asking a question.

15 Has it been fully assessed whether you could,  
16 basically, establish a ground water management zone in this  
17 area, continue to watch your natural attenuation, but  
18 address the contaminants which are going to the river by  
19 placing an air-sparging trench along this section of the  
20 site which would allow much easier access to that area.

21 I also know that the top of the clay is much  
22 closer to the surface here than it is down in this area so  
23 that the actual saturated thickness that you'd have to  
24 address is much, much less in that area. This would allow  
25 more rapid cleaning up of this continuing source of



1 contaminant which would potentially go to the river. It  
2 would sort of leave it behind, but it would address the  
3 river contamination at a much more expedient manner. It  
4 potentially is less costly and easier to get in there and  
5 address these issues related to precipitate forming within  
6 the air-sparging trench.

7 So I'm asking the question, Can this be more fully  
8 assessed addressing the contamination at this location as  
9 opposed to along the solid waste boundary?

10 I know it means writing off and leaving material  
11 in this area, but that area is owned by the City of Dover.  
12 It can be controlled administratively, so I'm throwing that  
13 out.

14 Thank you.

15 MR. JASINSKI: Thank you.

16 MR. STERN: May I take about 15 seconds?

17 MR. JASINSKI: Fifteen seconds.

18 MR. STERN: Yes. You know, I just want to say  
19 that I like the concept of removing contaminants and dealing  
20 with them rather than leaving them in place, and I think  
21 that's a good idea in a broad scope of things, but I think  
22 it's just that the problem with knowing the effectiveness of  
23 it, whether that's really going to work, is my concern, but  
24 I don't want to go with that being unsaid.

25 The idea of addressing them is a great idea,

1 although it doesn't address them where they've already moved  
2 off site to the Cocheco, but I do think that's a good idea.  
3 I'm just not sure that it's working or that we know it's  
4 going to work.

5 Thank you.

6 MR. JASINSKI: I guess, as they say, last call?

7 (No response.)

8 MR. JASINSKI: Anybody else?

9 (No response.)

10 MR. JASINSKI: I guess that will close the formal  
11 hearing for this evening. We appreciate all your comments,  
12 thorough, detailed, personal or otherwise. We'll get back  
13 to you as far as a request to have a hearing in Portsmouth.

14 I will remind you the public comment period will  
15 end on August 11th, not three days from today. Your  
16 comments are accepted to Darryl's attention either at  
17 luce.darryl@epa.gov by e-mail or send them directly to him,  
18 and I think his address and such are in the Proposed Plan.

19 Thank you very much for enduring the lack of air  
20 conditioning and the stifled room, and thank you very much  
21 again. We'll be here for a while. Thank you.

22 (Whereupon, at 8:20 p.m., July 19, 2004, the above  
23 matter was concluded.)

CERTIFICATE OF REPORTER AND TRANSCRIBER

This is to certify that the attached proceedings  
in the Matter of:

RE: AMENDED PROPOSED PLAN  
DOVER MUNICIPAL LANDFILL SUPERFUND SITE  
DOVER, NEW HAMPSHIRE

Place: Dover, New Hampshire

Date: July 19, 2004

were held as herein appears, and that this is the true,  
accurate and complete transcript prepared from the notes  
and/or recordings taken of the above entitled proceeding.

Suzanne French

Reporter

July 19, 2004

Date

Susan Hayes

Transcriber

August 2, 2004

Date

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**Responsiveness Summary: Dover Municipal Landfill Amended Record of Decision**

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**ATTACHMENT 2**

Appendix D: Responsiveness Summary

**Comment Letters Received**

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7 Tideview Dr  
Dover, NH 03820  
(603) 749-0833  
[bob@engel.com](mailto:bob@engel.com)

August 6, 2004

Darryl Luce  
United States Environmental Protection Agency  
1 Congress St, Suite 1100 (HBO)  
Boston, MA 02114

Dear Mr. Luce:

Please reconsider your plan to cap the Tolend Road Superfund site in Dover, New Hampshire and intercept migrating contaminants through use of a sparging trench. I feel that this is an unproven remedy that would have catastrophic consequences if it fails to perform as anticipated.

The Dover municipal landfill is located in close proximity to reservoirs and aquifers serving several communities. Failure of abatement procedures would create costly problems, both in terms of human suffering and financial damage. The solution chosen must be completely proven or must have a very high degree of success.

The plan ultimately chosen by the EPA must utilize technology and engineering practices that have been successful in other similar situations. Please do not use Dover to test new abatement processes; the risks are much too great.

Sincerely,

Robert R. Engel